

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter relates the direct, indirect, residual, and cumulative environmental consequences of the route designation alternatives on Resources, Uses, and Special Designations in the affected NEMO Routes planning area. The analysis of environmental consequences in this chapter is organized by resource and use element to facilitate comparisons of similarities and differences in affects of the four network alternatives. A summary of impacts is presented in Table 2-3 at the end of Chapter 2.

NEPA and CEQ regulations, as well as BLM procedures for implementing NEPA, specify that an EA should focus only on those resource areas potentially subject to impacts. In addition, these documents stipulate that the level of analysis applied to any given resource area should be commensurate with the level of impact anticipated for that resource. Applying these guidelines to this EA, the following critical elements of the human environment are not further analyzed in this EA.

- **Access for Non-renewable Energy and Mining.** For all of the alternatives, route designation is not anticipated to result in adverse energy or mining impacts. All areas of the planning area are generally accessible under all alternatives and the casual use network will not affect the ability of potential permittees for energy leases or mining plans to submit a proposal for use of a route not within the network, if needed to access specific resource values.
- **Farmland, Prime/Unique.** Significant prime and unique farmlands are not present in the planning area.
- **Floodplains.** Substantial floodplains are not present in the planning area.
- **Indian Trust Resources.** Route designation for casual use will not impact Indian Trust Resources. Existing Indian Trust Resources are accessible from County Roads or the primary route network, and access would be made available to tribes as new Indian Trust Resources are identified.
- **Paleontology.** Route designation for casual use will have minimal impact on known paleontology resources. Any future paleontological or cultural resource discovered during surveys will be evaluated.
- **Transportation, Utility and Communication Corridors.** These corridors will not be affected by route designations for casual use. These corridors have been adopted through the CDCA Plan, and no changes to them are proposed in this plan amendment.
- **Wastes, Hazardous/Solid.** Hazardous or solid wastes from vehicle use are negligible and do not vary by alternative. This planning effort does not designate routes in intensive OHV use areas, staging, or designated camping areas (focal points of hazardous or solid waste impacts from vehicles).

- **Wild Horses and Burros.** Route designation will not affect wild horse and burro management areas, as route density will not significantly increase or decrease in burro or wild horse management areas.

The computations in these analyses assume Geographic Information Systems accuracy, as identified in the mapping source data provided. Limitations in mapping and GIS accuracy may result in small errors on specific routes, but overall network validity has been checked through a combination of on-the-ground fieldwork and historic data. One of the values of this analysis methodology is that clarifications to data can be readily integrated into the analysis.

Route designations apply only to BLM managed lands and do not apply to county and private roads. The majority of the federal lands surrounding the NEMO Routes planning area are managed by the Natural Park Service (Death Valley National Park and Mojave National Preserve). This route designation does not apply to routes on Park lands.

4.2 Resources

This section discusses the environmental impact of the alternatives considered on resources in the affected planning area. Resources are discussed in alphabetical order.

4.2.1 Air Quality

Impacts to air quality are in the form of gaseous and particulate matter emitted into the air as a result of the direct and indirect effects of use of vehicles on routes. All of the pollutants subject to analysis are addressed in federal, state and local laws, statutes, regulations and rules. The federal and state ambient air quality standards define the criteria pollutants that are part of the emissions that are typically analyzed. In addition to the criteria pollutants, there are criteria for air toxics, hazardous air pollutants (HAP), Prevention of Significant Deterioration (PSD), fugitive dust and regional haze.

In the case of the NEMO route designations, there are only a few pollutants that have the potential to be emitted by casual use of vehicles and associated activities. The analysis is further focused to look at changes in emissions that would occur as a result of various alternatives. Most activities that produce emissions would not be impacted by the alternatives and will not be addressed in this analysis. In those cases, the baseline of the No Action Alternative is unchanged (see Chapter 3 for the discussion of the Affected Environment).

The activity associated with the route designations that would have an impact on air quality is route closure and the resultant change in the amount of disturbed soil surfaces and PM₁₀ emissions. The analysis will address particulate matter (PM₁₀) emissions based upon the potential to emit, and emissions most likely to be affected by the NEMO route designations. In addition, this pollutant is important because portions of the plan area are classified as federal non-attainment areas for PM₁₀.

State Implementation Plans (SIP) are prepared for the federal non-attainment areas. These SIP are designed to result in compliance with the NAAQS by federal deadlines. These SIP are implemented through a series of rules. In addition, air quality is highly regulated by a number of additional federal, state and regional regulations and rules.

Planning Assumptions

The level of use of each route is not exactly known, although some routes incur higher use and some routes incur lower use (e.g., evaluation technique in Chapter 3 Cultural route evaluation.) The Eastern Mojave Air Quality Control District estimates PM₁₀ emissions based on 10 cars per day in the planning area on the routes of travel network. Many of the routes proposed for closure have infrequent use. Closure of a route does not necessarily mean a corresponding reduction in the miles of travel within the region. Vehicles may use other open routes instead of a closed route. This analysis assumes no reduction in overall use of the route network with route closures, a somewhat conservative assumption. Thus, it is assumed that there would be no net reduction in vehicle emissions or dust from motorized vehicles use of unpaved routes

PM₁₀ emissions can be due to vehicles using unpaved roads and wind erosion of disturbed surfaces such as dirt roads. The long-term assumption is that closed routes will eventually be reclaimed (by nature and rehabilitation action). PM₁₀ emissions from wind erosion of disturbed surface can be substantial in the planning area. These PM₁₀ emissions due to wind erosion would decrease with time, as the closed routes become less disturbed and eventually reclaimed. This analysis relates the eventual reduction in PM₁₀ emissions as routes are reclaimed. .

Proposed Action

This alternative would result in 128 miles of closed routes. The closed routes would be reclaimed by nature and scheduled for route rehabilitate actions, as needed. USEPA estimates the average emission of PM₁₀ wind erosion of disturbed soils as 1.7 pounds per acre per day. This alternative would result in approximately 186 acres, of land being closed to vehicle traffic (128 miles @ 12' wide) resulting in an eventual reduction of PM₁₀ emissions of 317 pounds per day (58 tons/year). There would be reductions in emissions of particulate matter from BLM managed lands. This would result in corresponding declines in ambient PM₁₀ concentrations. Residual impacts would be similar to all other alternatives. Under all alternatives, reductions would not be enough from OHV closures, planning-area wide, to substantially change the number yearly exceedances of Clean Air Act PM₁₀ standards. However, no increase in exceedances is anticipated as a result of route designation and rehabilitation activities.

Enhanced Recreation Opportunities and Access Alternative

This alternative would result in 17 miles of closed routes and a correspondingly smaller reduction of 1.45 acres of bare ground in the plan area subject to wind erosion. This alternative would result in approximately 25 acres of land that is closed to vehicular traffic and a 42-lb/day reduction per day in PM₁₀ emissions from wind erosion (4 tons/year). Residual impacts are not substantially different than the **Proposed Action**. Exceedances would be greater in number than for the **Proposed Action** on a local level, but planning-area wide the impact would not be substantially different.

Enhanced Resource Protection Alternative

This alternative would result in the most miles of closed routes, and therefore would offer the greatest benefits to air quality from reductions in PM₁₀ emissions in the planning area. The closure of 174 miles of routes would lead to a corresponding reduction of 253 acres of bare ground in the plan area (174 miles @ 12' wide). This would result in a reduction in PM₁₀ emissions of 430 pounds per day (79 tons/year) from wind erosion. There would be reductions in emissions of particulate matter from BLM managed

lands. This would result in corresponding declines in ambient PM10 concentrations. Residual impacts would be similar to the **Proposed Action**.

No Action Alternative

This alternative would result in minimal change in miles of closed routes, bare ground or emissions in the plan area in the near term. There would be minimal changes in emissions of particulate matter or ambient PM10 concentrations from BLM managed lands, in the near term. In the long-term, new-routes identified since previous route designation efforts may be closed with resulting reductions in emissions of particulate matter from BLM managed lands due to decreased wind erosion emissions. This is anticipated to amount to as much as 40 miles of routes, and would occur based on resource sensitivity and as funding is available. Residual impacts would be similar to the **Enhanced Recreation Opportunities and Access Alternative**.

Federal Conformity

A federal conformity analysis is required for any federal action within any federal non-attainment or maintenance area. There are three areas within the NEMO area that meet those criteria. These are the Owens Valley and the Mojave Desert PM10 planning areas and the Mojave Desert modified ozone-planning area. The clean air act and its implementing rules (40 CFR 93) state that federal agencies must make a determination that proposed actions in federal non-attainment/maintenance areas conform to the applicable implementation plan (SIP) before the action is taken. In addition, the action cannot cause or contribute to any new violation of the National Ambient Air Quality Standards (NAAQS), cannot increase the frequency or severity of any existing violation of any NAAQS or delay timely attainment of any standard or any required interim emission reduction or other milestones.

Conformity Analysis and Conclusion

The **Proposed Action** and the **Enhanced Resource Protection Alternatives** result in reductions of PM10 emissions and reduces ozone emissions. The **Enhanced Recreation Opportunity and Access Alternative** and the **No Action Alternative** have small or minimal reductions in the amount of emissions, respectively. None of the alternatives would increase emissions. As a result, no further conformity analysis is necessary and a formal conformity determination is not required.

4.2.2 Biological Resources - Vegetation

Despite the low use, routes by their very nature have some loss of vegetation and compacted soils. Although the total area denuded of vegetation by roads may be small, there are a variety of other effects of vehicle use on the vegetation community. Among these are the following:

- Alterations in surface water flow and percolation, especially where the roadbed is not at grade level (Trombulak and Frissell 2000);
- An increase in overall plant height, plant biomass, and foliage arthropods through "water harvesting" adjacent to compacted roadbeds (Johnson *et al.* 1975, Vasek *et al.* 1975b), yielding an overall increase in vegetation production, even after considering the denudation of the roadbed;

- Providing a corridor of dispersal for some species of noxious weeds (Trombulak and Frissell 2000). In general, noxious weeds are more easily dispersed, grow quickly, and are highly competitive relative to native species--a difference augmented by the existence of many travel corridors. Seeds of invasive plants can be transported by vehicles in tires, windshields, under-carriage components, etc. traveling on the routes;
- Changes in the fire ecology in areas due to associated increases in noxious weeds. Invasive plants spread fires where they would not normally spread in the absence of invasive plants...e.g., the presence of *Schismus* sp. and *Bromus* sp. facilitated the spread of fire in the Mojave Desert (Brooks 1999) across interspaces between shrubs. Designated routes of travel can therefore impact the long-term fire ecology of the area by affecting the relative rates of spread of invasive species and likely areas of occurrence. Generally, the alternative with the lowest density of routes would have the least adverse impacts on vegetation through the spread of invasive plants, whereas the alternative with the highest density of routes would have the most adverse impact on vegetation. Route redundancy also has an impact on fire ecology because it affects route density;
- Loss of native vegetation due to driving off of roads for camping or parking;
- Certain communities that are generally smaller in area, such as Joshua tree stands, Fremont cottonwood stands, and willow stands, are more affected by fragmentation and degradation;
- Increased occurrence of fires started by visitors.

Several annotated bibliographies address the effects of roads on vegetation and natural communities; among these are Boarman 1999, Rowland 1980, and Spellerberg and Morrison 1989. Trombulak and Frissell (2000) reviewed the literature on ecological effects of roads, and Lovich and Bainbridge (1999) reviewed a variety of degrading activities, including roads. These bibliographies and literature reviews elaborate on the effects listed above, provide additional literature, and describe other effects of roads.

The compaction and loss of vegetation that has already occurred on the more heavily used roadbeds as a result of past route use may prevent natural re-vegetation of native species consistent with the surrounding area. Therefore, designating heavily used routes of travel will have minor direct effects to the vegetation on the route, at least in the reasonably foreseeable future, although direct impacts to vegetation off-route due to associated parking and camping may have an impact, particularly adjacent to recreational destinations. However, the majority of the routes within the routes of travel network enjoy light to moderate use at the present time, depending upon location and vehicle capability requirements (e.g., 4-wheel drive route).

Many of the wetland and riparian habitats are rated under Proper Functioning Condition assessments as already at-risk or non-functional due to vehicle use, camping, parking, route proliferation, and indirect impacts that may be associated with casual access by vehicles such as some exploratory mining activity or distribution of invasive plants (*Tamarix* sp., *Arrundo donax*, etc.). Disturbance of wetland areas can lead to the introduction of spread of invasive plants. Moreover, invasive plants decrease the diversity and abundance of wildlife species that would otherwise be high in riparian areas. The impacts associated with open routes in wetland and riparian areas may range from minor, where they are fenced and have limited visitation, to substantial, where they have no fencing to control vehicular access and overnight activities are occurring, taking into consideration access to at-risk or non-functional wetlands.

Proposed Action

The UPA consisting primarily of mesquite bosque found in the Denning Spring ACEC would be protected by a partial route closure from the north, as there would be a set back from the spring covering the UPA, and the route to Denning Springs from the south to Fort Irwin National Training Center would be closed. In addition, a few wash routes would be closed under the **Proposed Action** based on resource conflicts. The lower density of routes and avoidance of sensitive riparian areas would result in a positive direct effect on vegetation, in that it would maintain the integrity of these plant communities as a whole by decreasing erosion impacts, compaction, and an indirect loss of vegetation due to driving off of roads for camping or parking. Portions of routes leading to sections of the Amargosa River drainage would also be closed, offering increased protection of these riparian habitats. Routes of travel to some developed springs in the Valley View grazing allotment would be changed from “open” to “limited” use under this alternative. Access to Mineral Spring would be “limited” under the **Proposed Action**. Under this alternative, the route leading to Badwater (a non-potable water source) would be closed. Overall riparian and wetland impacts under this alternative are low, given the sensitivity of riparian and wetland areas with vehicle access and the **Proposed Action** would offer beneficial impacts to riparian and wetland areas. The **Proposed Action** would also result in a positive benefit to vegetation due to reduced opportunity for spread of invasive species. Some redundant routes were closed in areas with problems with invasive species. However, maintenance of network and recreation access and resource limitations precludes treatment of all known areas with non-native species infestations. Residual impacts would include increased potential for noxious species along open routes in areas that already have problems with non-native invasive species, and associated long-term increasing fire management risks in these areas.

Enhanced Recreation Opportunities and Access Alternative

Under the **Enhanced Recreation Opportunities and Access Alternative**, there would be little change to the current network, and therefore no measurable benefit to vegetation resource. In the long-term, there may be decreased potential for re-vegetation on moderately used routes if anticipated casual use continues to increase as forecast, consistent with population growth, into the middle of the next century. Lightly used routes may begin satisfactory re-vegetation of native species in a fairly short amount of time, given the right environmental conditions, or it may take several years in drought conditions.

Overall riparian and wetland impacts under this alternative are moderate, given the sensitivity of riparian and wetland areas that currently have vehicle access.

An excess of routes facilitates the spread of invasive noxious weeds over time. Under the **Enhanced Recreation Opportunities and Access Alternative**, there would be little change to the current network, and no change to the current impacts to noxious species and fire ecology from the existing network. Currently, invasive species are a persistent problem in various areas of the eastern Mojave Desert, both in riparian areas and uplands; therefore, the affects of the **Enhanced Recreation Opportunities and Access Alternative** would be moderately adverse.

Routes through the Carson Slough ACEC would be open under this alternative. This includes an additional existing route not designated in the 1987 that would be open for access just within the western boundary of the Carson Slough ACEC.

Residual impacts include loss of vegetation due to driving off of roads for camping or parking, including T&E species and riparian vegetation. As with the **Proposed Action**, there would be increased potential

for noxious species along open routes in areas that already have non-native invasive species, and associated long-term increasing fire management risks in these areas.

Enhanced Resource Protection Alternative

The impacts of the **Enhanced Resource Protection Alternative** are similar to those of the **Proposed Action**. This alternative would result in the lowest density of routes and the avoidance of the most riparian areas and washes, and therefore has the greatest net benefit to vegetation communities. Both the north and south routes to the Denning Spring ACEC would be closed under this alternative, resulting in the protection of a riparian UPA, not only from vehicular access but also from non-vehicular access. Elimination of routes (regardless of the reason for the route closure) and in particular closures of routes within washes or riparian areas would have a positive effect on vegetation, in that it would maintain the integrity of the plant community as a whole by decreasing erosion impacts, compaction, and loss of vegetation due to driving off of roads for camping or parking. The impacts on riparian/wetlands would be similar to those listed under the **Proposed Action**, except additional routes in the Amargosa drainage would be closed and a route segment leading to Mexican Spring would be closed under this alternative. The lower density of routes and avoidance of sensitive washes and riparian areas of the **Enhanced Resource Protection Alternative** would also result in the most positive benefit to these resource values as well as due to reduced opportunity for spread of invasive species of any of the alternatives.

Routes through the Carson Slough ACEC and routes that access the ACEC from the south would be closed under this alternative, which would be a beneficial impact to the habitat of the federally endangered Amargosa niterwort. Residual impacts from noxious species would be somewhat lower under this alternative than the **Proposed Action** due to the greater number of redundant route closures.

No Action Alternative

Impacts would be similar to those described for the **Enhanced Recreation Opportunities and Access Alternative**. Under the **No Action Alternative**, there would be little change to the current network, and therefore no measurable benefit to vegetation resource. In the long-term, there may be decreased potential for re-vegetation on moderately used routes if anticipated casual use continues to increase as forecast. Overall riparian and wetland impacts under this alternative are moderate, given the sensitivity of riparian and wetland areas with current vehicle access. Currently, invasive species are a persistent problem in various areas of the eastern Mojave Desert, both in riparian areas and uplands; therefore, the affects of the **No Action Alternative** on vegetation and fire ecology from invasive species would be moderately adverse.

Routes through the Carson Slough ACEC would be open under this alternative. This includes an additional existing route not designated in the 1987 that would be open for access just within the western boundary of the Carson Slough ACEC. Residual impacts would be similar to the **Enhanced Recreation Opportunities and Access Alternative**.

4.2.3 Biological Resources - Wildlife

The **Proposed Action** would result in a net increase of 50 miles in the designated route network as compared to the **No Action Alternative**, including the closure of 128 miles of routes and the **Enhanced Resource Protection Alternative** would result in a net increase of 4 miles in the designated network, including the closure of 174 miles of routes. Wildlife would benefit from the closure of routes that

impact wildlife behavior (i.e. feeding, breeding, nesting, watering sites, migration corridors). Reductions in the number of redundant routes would consolidate habitats that would otherwise be fragmented under the conditions of a dense route network and that otherwise would be more vulnerable to invasive species with resulting lower diversity and generally lower wildlife values. Protection of unique habitats, such as riparian areas and certain plant communities, would also be a positive impact on wildlife for this alternative. Residual impacts would primarily include direct mortality to small critters of all types (bugs, reptiles, mammals, and birds) and an occasional larger mammal from casual and permitted users of the designated route network. In addition, increased potential for noxious species along open routes would result in lower quality wildlife habitat in those areas, as non-natives do not meet most wildlife nutritional needs as well as native species. The Enhanced Resource Protection Alternative would have the lowest residual impacts due to having the fewest open miles in that alternative route network.

The **Enhanced Recreation Opportunities and Access Alternative** would result in a net increase of 161 miles in the designated route network as compared to the **No Action Alternative**, including the closure of 17 miles of routes. Impacts to wildlife from the routes of travel network under these alternatives would depend on frequency of route use by vehicles, time of year, species density near the route, and species behavior associated with the route. Many animal species can easily cross routes of travel; nevertheless, routes with moderate to high use patterns may eventually result in habitat fragmentation and decreased diversity over time, particularly under the Enhanced Recreation Opportunities and Access Alternative. Residual impacts are similar to the Proposed Action, and slightly higher in the Enhanced Recreation Opportunities and Access Alternative because of the increased miles of routes.

Wildlife Special Status Species

The impacts of the route designation alternatives on special status wildlife species are discussed in the following section on a species basis.

Amargosa vole

There are no routes of travel within the habitat of the federally and state endangered Amargosa vole, therefore route designation under all alternatives would have no effect on the Amargosa vole or the portions of its critical habitat that contain the constituent elements of Amargosa vole habitat, which is “wetland vegetation present in disjunctive ‘pockets’ along an isolated riparian segment of the Amargosa River” (U.S. Fish and Wildlife Service 1997).

Least Bell’s Vireo and Southwestern Willow Flycatcher

Least Bell’s vireo would likely benefit from any decrease in human disturbance as it is very sensitive to noise, night lighting, and consistent human presence in an area; excessive noise can cause least Bell’s vireo to abandon an area (51 *Federal Register* 16474), whereas disturbance is expected to disrupt nesting of the southwestern willow flycatcher only when human activities are continuous, intrusive, and adjacent to the vegetation that supports a nest (60 *Federal Register* 10694).

The federally and state endangered least Bell’s vireo and southwestern willow flycatcher forage in the Amargosa River drainage, including Grimshaw Basin, Amargosa Canyon, and Willow Creek. The species is suspected to nest in this general area, although no positive proof has been provided to date (Bureau 2003a, Southern Sierra Research Station 2002). There are no routes within the central canyon

area because of its status as an ACEC starting in 1983, and its inclusion in a larger pan-Amargosa ACEC implemented under the CDCA Plan Amendment (NEMO 2002). None of the alternatives would change this existing situation in the Central Amargosa Canyon area. It is anticipated that no alternatives would have any residual effects on either species, given current information. Vireo nests found in additional locations could trigger future seasonal or permanent route closures, given sensitivity to human disturbance. These would be addressed when nests are discovered, based on proximity to the route network, per identified criteria.

The **No Action** and **Enhanced Recreation Opportunities and Access Alternatives** do not change the existing 1985-1987 route network as it exists now in the other portions of the action area in which least Bell's vireo or southwestern willow flycatcher may migrate or forage (no nesting by these species is known to occur within the remainder of the action area). Therefore these two alternatives do not alter the amount of access provided by routes to these migratory bird species, and the potential for human disturbance.

The **Proposed Action** and **Enhanced Resource Protection Alternatives** close one, and some routes, respectively, adjacent to riparian habitat far removed from the Amargosa River drainage where least Bell's vireo or southwestern willow flycatcher have been sighted. Although it is unlikely that least Bell's vireo nest outside of the Amargosa River drainage, if nesting pairs of this species do exist where route closure would occur under this alternative, or closure provides the opportunity for such nesting, substantial benefits to the species could occur.

Inyo California Towhee

The federally threatened and state endangered Inyo California towhee's habitat is very limited within the action area (Argus Range); its designated critical habitat comprises an even smaller portion of the planning area. **All four alternatives** leave the amount of routes designated as open, closed, or limited within this species habitat unchanged from the 1985-1987 network; in the 1985-1987 network designated routes were located such that they do not travel to or by springs in this area, and some roads are barricaded at their ends sufficient distances from springs occupied by species that vehicles are unlikely to disturb the species (U.S. Fish and Wildlife Service 2003). No residual impacts are anticipated.

Desert Tortoise

Common to All Alternatives

The federally and state threatened desert tortoise is found throughout the southern two-thirds of the action area except in certain sand dunes and portions of the Baker sink which lack viable habitat. By definition, habitat in the action area is Category III, which has lower population densities and generally lesser quality habitat. The following discussion is from the Bureau's biological evaluation (2004b) on the effects of the Proposed action. The discussion is based in large part on the U.S. Fish and Wildlife Service's effects analysis found in the biological opinion on desert tortoise for the Western Mojave Planning Area route designation project effects analysis (USBLM 2003c).

Roads can have both direct and indirect effects on desert tortoises and their habitat. The primary direct effect is that vehicles that are driving on routes of travel can strike desert tortoises. As is usually the case, hatchling desert tortoises are the most difficult individuals to detect and may be inadvertently struck by vehicles. However, they may be at somewhat less risk than sub-adult and adult desert tortoises because

their territories are presumably smaller, they may move around less and therefore are less likely to encounter a road. Their propensity to be more active during cooler times of the year may extend the periods during which they are at risk from vehicle strikes.

Although larger individuals can be seen on roads more readily than the younger, smaller ones, vehicles can travel at speeds that reduce the ability of drivers to detect and avoid desert tortoises. Rises and turns in roads also decrease the ability of drivers to detect desert tortoises. The actual level of mortality that would occur along a specific road will be influenced by many variables and is difficult to predict; the level and type of use of the road by vehicles and the number of desert tortoises present during periods of heavy use are primary factors that are difficult to predict. Mortality associated with vehicle strikes will be greatest in the spring and fall, in areas where desert tortoises are most common. Along heavily used roads, the number of desert tortoises is depressed for some distance from the edge of the road; along lightly used roads, Von Seckenforff, Hoff and Marlow (2002) did not detect any significant difference in the distribution of desert tortoises.

The extent of mortality of desert tortoises will increase as the density of roads and the number of animals increase. At some point, vehicle use on roads (and other activities that accompany vehicle use) would likely reduce the number of desert tortoises to a point where the level of mortality also decreases, simply because fewer desert tortoises live in the region. At the present time, desert tortoises seem to have become so rare in areas where they were formerly abundant that they are unlikely to be struck by vehicles.

Some routes of travel are located in washes. Washes can provide important resources to desert tortoises because they often support forage plants at times when upland areas do not; desert tortoises also frequently use the banks of washes to construct their burrows. At times, desert tortoises may use washes to move through their territories; they may travel along washes more frequently in extremely rugged terrain. Consequently, vehicle use in washes has the potential to have a relatively greater degree of impact on desert tortoises than the use of roads. Adverse effects would be greatest in more narrow, vegetated washes where vehicles do not have room to maneuver around shrubs or avoid riding partially up banks; the ability of drivers to see desert tortoises in these washes is also diminished. In wide washes, where flooding causes relatively frequent disturbance and few shrubs are present, vehicles can be used with little or no effect on desert tortoises or their habitat.

The human activities that routes of travel accommodate may pose a greater threat to desert tortoises than being struck by a moving vehicle because of the variety of indirect effects they can pose. Routes of travel through the desert increase the frequency at which people can interact with desert tortoises. These interactions can lead to uninformed or malicious interactions that result in injury, mortality, or collection of desert tortoises. Unauthorized handling or restraint of a desert tortoise could induce physiological stress that reduces the animal's ability to withstand high temperatures. Additionally, desert tortoises may seek shelter in the shade of vehicles parked along a route of travel and be crushed when those vehicles are subsequently moved. Improper disposal of food wastes and trash left by users of routes of travel can attract predators of the desert tortoise, especially common ravens. Pet dogs brought onto public lands by people using routes of travel could disturb, injure, or kill desert tortoises.

The Bureau's program guidance allows cars and trucks to drive and park up to 300 feet from a route of travel. This authorized off-road use can crush desert tortoises, which would be more difficult to see away from roads, destroy their burrows, crush shrubs that they use for cover, and disturb soils and allow invasion by non-native plant species. In some areas, the density of vegetation precludes most off-road travel; in other areas, vehicles would likely become mired in soft substrates. However, recreation users

seem to prefer specific sites at which they can congregate. In the planning area, these sites are generally located adjacent to major highways, including SR 127 near Tecopa and SR 95 near Needles. This frequent use degrades habitat to the point that desert tortoises would be unlikely to forage or burrow in these areas.

Routes of travel also serve as corridors by which non-native plant species can more easily invade habitat of the desert tortoise. Brooks (1998 in Boarman 1999) found that the number of non-native plant species increase near roads. At least two mechanisms seem to be at work in the process of invasion. First, vehicles may transport seeds of non-native species along routes of travel on their wheels and undercarriages. The existence of a network of routes may result in seeds of invasive plants being carried far from the sites where they were originally introduced.

Secondly, many non-native plant species tend to colonize disturbed areas more readily than native species; road beds and berms along routes of travel are highly disturbed and therefore provide ample opportunity for these species to become established and spread. Some disturbance of soils adjacent to routes of travel likely occurs. Such disturbance can be caused by routine maintenance, drivers leaving the roadbed to pass another vehicle or to avoid a wet or sandy area, and recreation users pulling off routes of travel to camp or park; unauthorized cross-county travel that is facilitated by routes of travel also contributes to soil disturbance.

Disturbance of soils can accelerate the spread of invasive non-native plant species by destruction of soil crusts and cryptogams. These non-native species, in turn, can compete with the native plant species (Lovich and Bainbridge 1999); non-native species are often better competitors than native species and may reduce the abundance of important forage plants that the desert tortoise requires for nutrients and shelter. Generally, the relatively few species of non-native plants do not contain the variety of nutrients that desert tortoises obtain from numerous species of native plants; over time, this decrease in available nutrients places desert tortoises under physiological stress.

Non-native plants can also increase the ability of the desert to carry wild fires (Lovich and Bainbridge 1999, Brooks and Esque 2002). Neither desert tortoises nor the plant species upon which they depend are adapted to fire; consequently, fires could result in a substantial loss of desert tortoises and severely alter the plant community structure within their habitat (Brooks and Esque 2002). Finally, the increasing abundance of non-native species may have a synergistic effect with human activity; most fires in the western Mojave Desert likely start as a result of human recreational activity (Franklin, pers. comm.). Even relatively few fires can transform diverse desert scrub habitat into grasslands of non-native species with low diversity.

Most observations such as those described in the previous paragraphs have been describing the result of cross-country travel or heavy use of roads. However, regarding "light" use by vehicles, Boarman (1999) notes that "very little data are available to evaluate those impacts" because most studies have been conducted in areas of heavy use. Boarman (1999) acknowledges that light use can affect habitat but that "(v)ery light, basically non-repeated vehicle use probably has little long-term impact."

Most routes of travel in the East Mojave currently are not used on such a frequent basis that they would fragment habitat of the desert tortoise. Most use of routes of travel involves recreational activities, which generally occur at higher levels on weekends and holidays. However, some routes of travel are maintained such that the bed of the road is lowered and side berms raised so much, that when desert

tortoises enter that roadway, they couldn't exit. These animals are subsequently threatened with predation, exposure to extreme temperatures, collection, and collision with vehicles.

Each alternative presents route networks that allow access to most regions of the action area to an extent that does not prevent the conservation and recovery of the desert tortoise. It follows then that since desert tortoises can be killed or injured by vehicles and access routes introduce other direct and indirect effects on the species and its habitat, the networks that provide for the largest expanses of undisturbed habitat for the desert tortoise would impact the species least. However, the U.S. Fish and Wildlife Service notes that neither the Bureau or the Service (USFWS 2002a) has definitive information on how differing route networks affect the desert tortoise; obviously roadless areas would have the least adverse effect on desert tortoises and their habitat; it follows that with increasing amounts of open routes within the action area, the greater the impact to the desert tortoise and its habitat. However, the use patterns on the open route network may be as important, particularly in areas where tortoises are more likely to be found.

Two of the these four alternatives provide for measurable reductions in the amount of identified open routes within the route network and thus are likely to provide some level of benefit to the desert tortoise greater than that provided by the No Action Alternative. The **Enhanced Resource Protection Alternative** provides a net decrease in Open Routes when compared to the No Action Alternative. Approximately 88% of routes would be designated open. The **Proposed Action** provides a small net increase when compared to the No Action Alternative; and 90% of routes would be designated open. The **Enhanced Recreation Opportunities and Access Alternative** would result in a substantial net increase in designated open routes of and 99% of routes would be designated open. The No Action alternative would provide the existing designated route network, and the 7% of newly identified routes would be designated on a case-by-case basis. For the No Action Alternative, the result would be that between 93% and 99% of the identified route network could be designated open over the long-term.

Under the **Proposed Action, Enhanced Recreation Opportunities and Access, and No Action Alternatives** there would be no prohibition on opening new routes in washes, per application of the regulatory criteria, and specific alternative criteria. The **Enhanced Resource Protection Alternative** prohibits new open routes within washes unless they are essential to the route network or no alternative exists to reaching specific destinations. Under all alternatives, residual direct and indirect impacts would occur to desert tortoise. Direct and indirect mortality would continue on and adjacent to the open route network from OHVs. Adverse effects from OHVs on wash habitat and the desert tortoise using those washes would continue, most especially under the **Enhanced Recreation Opportunities and Access, and No Action Alternatives**. The increased potential for non-native species would continue to adversely affect habitat along open networks under all alternatives, with relative impacts dependent upon number of open routes through areas with invasive species in desert tortoise habitat. These effects are occurring in Category III desert tortoise habitat, which is primarily lower density habitat.

Black Toad

An interdisciplinary BLM team evaluated the wetland habitat of the source waters of the state-threatened black toad at Deep Springs Lake and found the area in Proper Functioning Condition. Routes do not cross the wetland area nor facilitate cattle using the vegetation around the lake. Team members observed black toads using the area. Under **all alternatives**, the same numbers of open routes traverse riparian habitat (near Antelope Spring) on BLM lands suitable to the black toad.

Swainson's Hawk

Two nesting pairs of the state-threatened Swainson's hawk are known to inhabit Fish Lake Valley (Novak, pers. comm. 2000). Route F0036, which is near these nests is designated open under the **No Action** and **Enhanced Recreation Opportunities and Access Alternatives**. Route F0036 would be closed in the **Enhanced Resource Protection Alternative** and the **Proposed Action**. Although the nesting pairs have tolerated occasional vehicle access for many years, the additional solitude and lesser amount of vehicle noise that would be provided by closing F0036 would be beneficial to the species.

Bats and Myotis

California leaf-nosed bat, fringed myotis, long-eared myotis, western small-footed myotis, pallid bat, spotted bat, Townsend's western big-eared bat, and the western mastiff bat: are known to exist variously in the Inyo, Avawatz, Panamint, and White mountains. Natural features that the bats may use are generally inaccessible by vehicle, but bats use many readily accessible man-made features, especially active mines and abandoned mines and appurtenant buildings. Route designation under the **No Action Alternative** currently designates a number of existing routes as open within the mountain ranges just mentioned. In addition, the Amargosa River and its tributaries, (the Kingston Mountain-Silurian Hills-Kingston Wash) provide zones of bat concentration that have routes currently open for use. Many of these routes are quite rough, and thus receive relatively little use. Route designation for these designated open routes would continue under the **other three alternatives** except for a few routes closed in the **Enhanced Resource Protection Alternative** that are within the southern boundary of the Silurian Bat Area in the Silurian Hills. However, in an area such as the Silurian Hills, which is near a busy State Highway (127) and has many small active mines, route designation per se (to close or limit currently open routes would only present direct positive benefit to the bats where routes do not lead to currently active mines or mining claims that would remain open or limited until the mining sites are rehabilitated (as needed). The **Enhanced Resource Protection Alternative** would prevent many additional desert washes from being designated open, which would benefit the California leaf-nosed bat, which forages in desert washes.

Desert Bighorn Sheep

The route through Pleasant Canyon is the major route into the Panamint Range, which provides access to Death Valley National Park as well. This would remain open under **all alternatives**. Other routes with potential impacts to bighorn sheep that would remain open under all alternatives are the western N/S access into the Kingston ACEC off of Smith Talc Road, Goler Canyon and South Park Canyon. Also under **all alternatives except the Enhanced Resource Protection Alternative** an additional 4-wheel wash route in the interior of the Kingston's Wash in Bighorn Sheep habitat would remain available for use.

Western Burrowing Owl

Under the **No Action Alternative**, open routes traverse habitat in the Panamint Valley and Fish Lake Valley used by the western burrowing owl. In Fish Lake Valley, Route F0036 is designated open under the **No Action Alternative** and the **Enhanced Recreation Opportunities and Access Alternative**. Route F0036 would be closed in the **Enhanced Resource Protection Alternative** and the **Proposed Action**. Although western burrowing owls have tolerated the current levels of occasional vehicle access for many years, closing F0036 would provide the following benefits to the species: additional solitude,

decreased noise from vehicles, elimination of threat to burrows by vehicles pulling over to park, and elimination of potential for increased threat to owl habitat from anticipated future increased vehicular use.

Le Conte's Thrasher

The Panamint Mountain Range in the Ridgecrest portion of the action area may provide occupied suitable habitat for the Le Conte's thrasher. Route designation under **all alternatives** would leave routes within this habitat designated open. Impacts can be anticipated to be similar to those anticipated to least Bell's vireo near human disturbance under all alternatives.

Mojave Fringe-toed Lizard

The Mojave fringe-toed lizard generally inhabits a limited area within the Dumont Dunes OHV Area, outside of the action area where routes of travel are being designated. However, some Mojave fringe-toed lizards may occasionally move north or northwest out of the OHV Area. Under the **No Action Alternative**, routes are designated open within this potential habitat of the Mojave fringe-toed lizard. The **Proposed Action** and the **Enhanced Recreational Opportunities and Access** and **Enhanced Resource Protection Alternatives** would close a portion of Route D1612 from immediately east of the OHV area south to the Kingston wilderness; although D1612 would remain open from the west (across the north end of the OHV Area), through traffic would be eliminated, which should provide modest benefit to the species.

4.2.4 Cultural and Historic Resources

A proposed revision of the Programmatic Agreement between the Bureau of Land Management of California and the California Office of Historic Preservation has been developed to guide cultural resource management decision making concerning the use of off highway vehicles (OHV) on public lands. That portion of the revised Programmatic Agreement relating to OHV is comprised of three phases which together are designed "to identify, evaluate, assess effects, and make recommendations for resolution of adverse effects to historic properties which could result from continued use of routes of travel and their associated stopping, parking, and/or vehicular camping areas within the California Desert Conservation Area (CDCA)." Phase 1 is a study of a sample of known or potentially eligible historic properties, which coincide with areas of use by the public. Phase 2 will use a predictive model to locate historic properties along routes where such information is absent from the database. Phase 3 is an inventory of routes of travel that bound and traverses Areas of Critical Environmental Concern (ACEC) and National Register Districts. Aspects of Phase 2 and Phase 3 may be developed and implemented concurrently with Phase 1, as staffing and funding allow. Land surveyed to implement Phase 3 will be reported as work accomplished to meet BLM's requirements under Section 110 of the National Historic Preservation Act and commitments in the CDCA Plan.

A cultural resources records and literature search was conducted on lands in the NEMO Routes planning area that are transected by routes of travel. The records search included archaeological data in the California Historic Resources Inventory System (CHRIS). Using this CHRIS database and Arc Map software, GIS specialists ran an analysis of cultural resources recorded within a 600-foot corridor (300 foot on each side of the centerline of a route) of routes of travel for each alternative. The routes of travel include both improved (paved or mechanically graded), and unimproved roads. The purpose was to identify areas of potential conflict with NEMO route alternatives. The following list summarizes the route designation alternatives and their potential affect on cultural resources.

- | | |
|---|--|
| 1. Proposed Action | This action calls for the closure of several, but not all, of the same roads as Alternative 3. Some routes that would remain open may have cultural resource values. |
| 2. Enhanced Recreation Opportunities & Access Alt | This alternative calls for the enhancement and maintenance of some portions of certain roads to increase accessibility. |
| 3. Enhanced Resource Protection Alt | This alternative would result in the closure of certain routes with cultural resource values. |
| 4. NEMO No Action Alternative | Routes of travel would remain the same as they are at present. |

In addition to cultural resources intersected by the routes of travel, Cultural Resources and Recreation specialists identified the level to which the general public uses routes within the planning area. Use level was identified as high, medium, or low according to criteria developed under Phase 1 of the Programmatic Agreement with the California Office of Historic Preservation

Common to All Alternatives

The route designation and implementation activities that may affect cultural resources include:

- (1) Implementing actions such as construction of fences or culverts, placement of signs and kiosks, and rehabilitation and restoration of routes or larger areas,
- (2) Designation of routes of travel as open to vehicle use inside or in the vicinity of cultural resources, and
- (3) Eligible or Listed properties that are transected by, or immediately adjacent to, routes of travel will continue to receive impacts by OHV use. Properties within 300 feet on either side of routes of travel may be subject to impacts due to parking, camping, or vehicular traffic.

For many of these activities, effects would be evaluated when specific actions are proposed for specific locations. Specific actions would be subject to compliance with cultural resource statutes and regulations, Section 106 of the National Historic Preservation Act, and associated consultation with the State Historic Preservation Officer and Native American tribes.

The northern portion of the planning area (to the north and west of Death Valley National Park) contains medium to low usage BLM-managed routes and consequently direct and indirect impacts on cultural resources resulting from OHV use are not substantial in this area at present. The section of the Panamint Valley south of State Route 190 (SR-190) is the most heavily used part of the NEMO Routes planning area. The routes of medium to high use in the Panamint Valley south of SR-190 (based on the route usage levels of the Programmatic Agreement with SHPO) are the regularly maintained County Roads that are not a part of this route designation effort for BLM managed lands. These include the road that crosses the valley from Panamint Valley Road to Ballarat, and the north/south Nadeau route along the west side of the Panamint Valley. These roads facilitate access to a set of medium use routes managed by the BLM that lead to the piedmont of the Argus Range, to Lookout Mountain, and canyons to the east.

To the north of SR-190 are low use level routes that are found in the Cerro Gordo, Chocolate Mountain, and White Mountain Wasa regions. These latter routes tend to be relatively short in length and typically connect to, or are seriously affected by, drainages that are sufficiently active that cultural resources, if present, are not preserved in their original depositional context. In contrast to the relatively heavily used Panamint Valley County Roads and their route offshoots on public lands, the area between Darwin Falls and Piper Peak in the northwest is more remote and receives less visitation, resulting in limited impacts on cultural resources.

Vehicle access in the central portion of the planning area south of the Death Valley National Park and north of I-15 is characterized by the full range of high, medium, low and no use. On average, the designated off-highway vehicle area (Dumont Dunes) and nearby locations (Amargosa, Salt Creek, and Kingston Mountains) receive the highest amount of public use. The Los Angeles to Barstow to Las Vegas dualsport event route also has a moderate to high use level, particularly the major linear route within the Boulder Corridor that is a wide touring route parallel to I-15. Other utility access roads and areas less accessible from County Roads and state highways generally have low and moderate vehicle use. A number of significant cultural properties have already been damaged by intense off-highway vehicle activity (i.e. Riggs Town site, large portions of the Tonopah & Tidewater Railroad) and continue to deteriorate as a result of vehicle access and other factors. Vehicle closure to a portion of the Tonopah & Tidewater (T&T) Railroad in the Central Amargosa has eliminated vehicular damage to a section of the T&T, as well as potential damage to other nearby sites.

The amount of vehicular travel on routes in the southern portion of the planning area, south of I-15 and north of SR66, is characterized by high, medium, low use, with highest use concentrated in the southern portion Needles Resource Area, adjacent to Route 66 and the Dead Mountains Wilderness Area in the vicinity of the City of Needles. The routes of travel included both improved (paved or mechanically graded), and unimproved roads. Graded and maintained utility access roads, constructed within utility corridors and rights-of-ways, provide visitors greater access to large expanses of public lands. The archaeological record reveals that no utility access roads have had a direct negative impact on eligible historic properties' nomination to the National Register as a consequence of utility access road construction.

Proposed Action

Closing the routes identified under the **Proposed Action** would enhance the preservation of cultural resources along these routes. The total extent, or number of cultural resource sites that would be protected under this alternative is not known because of the lack of cultural resource inventory (and existing analysis of impacts) along the route closures. The rehabilitation of closed routes (including unauthorized routes of travel adjacent to closed routes) will require archaeological survey, inventory, mitigation, and/or avoidance of identified eligible properties.

An active campaign of public education and law enforcement patrolling would help mitigate the potential for adverse impacts to cultural resources within, or adjacent to, rehabilitated roads and unauthorized routes of travel within the NEMO Routes of Travel Planning Area, as funding permits.

Enhanced Recreation Opportunities and Access Alternative

The **Enhanced Recreation Opportunities and Access Alternative** would not substantially change the current impacts on cultural resources. The majority of the NEMO routes of travel have not been archaeologically surveyed, inventoried, or evaluated for cultural resources. The existing routes scheduled for enhanced maintenance under this proposal pass through areas where the effects of active drainages make *in situ* preservation of cultural resources unlikely or the routes are already maintained; thus, no new disturbance is likely from enhanced maintenance activities. Enhanced maintenance under this proposal would be preceded by archaeological survey, and adverse impacts, or effects, will be mitigated as appropriate per compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, or the Protocol Agreement between the BLM and the California State Historic Preservation Officer.

Enhanced Resource Protection Alternative

The affects of route closures under the **Enhanced Resource Protection Alternative** would be similar to the **Proposed Action**, but this alternative would further enhance the preservation of cultural resources on routes closed or limited to protect cultural values. By closing additional routes with cultural resource values, potential for future loss of cultural resource values would be minimized on those routes. Potential for unauthorized use of routes would potentially increase in more popular areas, which could have adverse affects on cultural resources.

No Action Alternative

The **No Action Alternative** would not substantially change the current impacts on cultural resources by OHV use, and therefore has similar affects to cultural resources as the **Enhanced Recreation Opportunities and Access Alternative** in the near term. Case-by-case evaluation of newly identified routes may result in additional route closures or mitigation to protect cultural values.

4.2.5 Soils

The alternatives will have varying levels of impacts on soils. Impacts to soil would be primarily from presence of the roadbed itself and the action of the wheels on soil of the existing roads. The different alternatives have different lengths of routes open for vehicle use, thus the different levels of impact. The impacts of route usage on soil will be somewhat more in the northwestern portion of the planning area because the soils in that area are more sensitive to disturbance. Impacts will be generally greater under the **No Action and Enhanced Recreation Opportunities and Access (EROA) Alternatives** than the **Enhanced Resource Protection Alternative**, with the impacts from the **Proposed Action** in-between the ERP and the other alternatives.

Routes adjacent to riparian areas would have more impacts on the remaining soils because of the destabilizing nature of motorized traffic on the soil and vegetation. Roads in riparian areas can result in greater erosion during flooding. Potential problem areas include the routes in the northern part of the Planning Area, primarily in canyons on the east side of the White Mountains bordering the US Forest Service land. Under the **Enhanced Resource Protection Alternative**, some of these routes would be closed. The route through Denning Springs would be closed under the **Enhance Resource Protection Alternative** and **Proposed Action**.

The indirect disturbances to soil associated with roads are more difficult to quantify and include activities that involve stopping along roads and engaging in some activity that affects the soils. This could include camping, picnicking, hunting, unloading equipment or animals, and simply parking off the route for any reason. The impacts from this activity will be greater in areas with soils that are sensitive to disturbance, steeper topography, and wetlands and riparian areas.

4.2.6 Water

The primary impacts of the route network will be on those surface waters where the routes cross or traverse the stream flow. This is the case in Pleasant Canyon and for a number of other perennial and ephemeral stream flows in the planning area, and will form the primary differences in the impacts for the four alternatives. In some cases the routes lead to or may parallel the water course, but do not traverse the actual surface water. In these cases human impacts to the water quality may take place but will be difficult to quantify on a site-specific basis for this NEPA document without monitoring data. These impacts would take the form of any human activity that affects the quality and quantity of the water. This could include camping, fishing, hunting, bird watching, and picnicking with the potential for litter and human waste getting into the water. Another activity often associated with camping is the construction of small rock dams for swimming or bathing. Dogs are often brought along and may help reduce the quality of the water. In general, the level of direct and indirect impacts increases with increased route use. In most of the planning area, use is low to moderate and therefore these secondary impacts would not have measurable long-term effects. Infrequent route use will produce negligible, short-term impacts in the absence of other sensitive resource values. High route use can produce persistent, localized impacts near heavily used, popular areas.

At favorite places along creeks for camping, fishing, etc, this can lead to a lack of streamside cover, degraded stream banks, trash buildup, and a loss of other factors that maintain channel stability at these heavily used areas. These changes all contribute to poor water quality. Creeks like Cottonwood Creek also have the additional impacts of cattle grazing. There is no data on the impacts of human disturbance on most of these creeks but many of these have been evaluated for the impacts of cattle grazing by an interdisciplinary team. In this case, the team found that a cattle grazing was the major issue, rather than casual vehicular access and associated recreational use.

In Table 4-1 we have tried to give the reviewer an idea of the relative impacts of routes on specific waters listed in the Affected Environment. Based on this comparison, there are not substantial differences in impacts between the alternatives. It is a comparison of impacts to water quality and quantity. A thorough survey has not been completed for all the drainages with routes and jeep trails in them. This is partly true for the east slope of the White Mountains and other remote areas of the NEMO Routes planning area. Designations of these areas should be reevaluated if future monitoring reveals perennial surface water impacts would occur or are projected beyond the limits of acceptable change.

Table 4-1. A comparison of the Relative Impact on Water Resources of NEMO Route Designation Alternatives

Name of Water	Alternative			
	Proposed Action	Enhanced Recreation Opportunities and Access	Enhanced Resource Protection	No Action
Middle Park	Low	Low	Low	Low
Pleasant	Moderate	Moderate	Moderate	Moderate
Happy	Closed	Closed	Closed	Closed
Surprise	**	**	**	**
Hall	Low	Low	Low	Low
Jail	Low	Low	Low	Low
Water, Knight, Revenue, Snow, Thompson	Low	Low	Low	Low
Pat Keyes, Willow, McElvoy	Low	Low	Low	Low
Daisy, Craig, Hunter, Beverage	Low	Low	Low	Low
Wyman Creek	Low	Low	Low	Low
Cottonwood Creek	Locally Moderate	Locally Moderate	Locally Moderate	Locally Moderate
Toler Creek	Moderate	Moderate	Moderate	Moderate
McAfee and Perry Akin	Low	Low	Low	Low
Indian Garden Creek	Moderate	Moderate	Moderate	Moderate
Furnace Creek	**	**	**	**
Miscellaneous creeks on East Slope of White Mountain	Unknown	Unknown	Unknown	Unknown
Deep Springs Wetland Area***-	Low	Low	Low	Low
Amargosa River (outside Central Canyon-closed)	Locally Moderate	Moderate	Low	Moderate
Grimshaw Lake	Low	Low	Low	Low
Tecopa Hot Springs	Low	Low	Low	Low
Willow Creek	Low	Low	Low	Low
Salt Creek	Locally Moderate	Locally Moderate	Low	Locally Moderate

** To be determined under a separate NEPA document

*** Deep Spring Lake is fed by Corral Springs (Private Land), Buckhorn Springs (Public and Private), Bogmound Springs (Private), and other un-named springs

4.2.7 Watersheds

A unified watershed assessment conducted in preparation of the Clean Water Action Plan (1998) classified the watersheds into one of four categories. Category I watersheds are candidates for increased restoration activities due to impaired water quality while Category III watersheds are pristine or sensitive areas on federal, state or tribal lands that need protection. Table 4-2 presents the impacts in relative terms to the planning area watersheds of the four alternatives considered.

Table 4-2. Relative Impacts to Watersheds of NEMO Route Designation Alternatives

Watershed	Category	Alternative			
		Proposed Action	Enhanced Recreation Opportunities and Access	Enhanced Resource Protection	No Action
Eureka-Saline Valleys	I	Low	Slightly Higher	Low	Slightly Higher
Upper Amargosa ¹	I	Low	Higher	Low	Higher
Upper Mojave	I	Low	Low	Low	Low
Fish Lake – Soda Springs Valleys	III	Low	Low	Low	Low
Ivanpah – Pahrump Valleys	III	Low	Slightly Higher	Low	Slightly Higher
Death Valley – Central and Lower Amargosa	III	Low	Slightly Higher	Low	Slightly Higher
Panamint Valley	III	Low	Low	Low	Low

In the Eureka-Saline Valley watershed, the **Enhanced Resource Protection Alternative** and **Proposed Action** are nearly identical in routes open but in both cases the routes do not traverse the slopes and do not affect the watershed. The **No Action** and **Enhanced Recreation Opportunities and Access Alternatives** each allow 4- 5 more short routes onto the lower slopes, allowing a slight increase in potential impacts to the watershed.

The Upper Amargosa watershed would experience a substantial reduction in routes under the **Enhanced Resource Protection Alternative** and **Proposed Action**. It is difficult to quantify the differences because many of the changes are on the valley floor, but given the level and types of area activities watershed benefits are anticipated to occur.

There is little difference in the alternatives for the Upper Mojave watershed.

Fish Lake – Soda Springs Valleys- There is little difference in the alternatives with only 1- 3 routes in the bottom of drainages being closed under the **Proposed Action** and **Enhanced Resource Protection Alternative**.

The different alternatives would result in minor differences in affects to The Ivanpah – Pahrump Valley watersheds. A few more routes are open under the **No Action** and **Enhanced Recreation Opportunities and Access Alternatives**.

¹ This classification is due to salinity that is a natural phenomenon. According to the California Regional Water Quality Control Board, Lahonton Region, South Lake Tahoe, California and USEPA Region 9 (2000), in the Amendments to the Lahonton Water Quality Control Basin Plan, the Amargosa River is a naturally impaired water body in terms of drinking water quality, and has been removed from beneficial use designation.

The watershed in the Central and Lower Amargosa Valleys has a fairly low density of open routes under the **Enhanced Resource Protection Alternative** with one major and a few smaller routes open under the **Proposed Action**. There are about dozen routes that would be open under the **No Action** and **Enhanced Recreation Opportunities and Access Alternatives**. There is one key closure under the **Proposed Action** and **Enhanced Resource Protection Alternative** that provides access to several routes down the slopes leading to the Amargosa from the northeast, and an additional closure under the **Enhanced Resource Protection Alternative** of a main wash system accessing the Central Amargosa Canyon from the east. Closure of both of these routes would reduce impacts to the watershed.

There is little difference among the alternatives for impacts on the Panamint Valley watershed. The differences in closures are on the valley floor so there will be little difference in impacts to watersheds.

4.3 Uses

The environmental consequences of alternatives considered on uses within the planning area are discussed in this section.

4.3.1 Lands and Realty

The route designations as proposed in all of the alternatives would have no affect on land acquisitions and disposals, as these actions would continue as identified in approved land use plans.

None of the alternatives will affect valid existing rights of approved land use authorizations and future authorizations granted by the U.S. Government to specific parties. Authorized use of public lands is through the issuance of right-of-way grants, leases and permits. The route designation process does not affect existing authorized users, as they already have the permitted right of access that is subject to certain conditions to limit damage to resources. Future authorized users would be directly affected, as their proposed use of the public lands can be permitted through separate and independent analysis and decisions containing specific provisions for the protection of resources. These provisions generally provide for the use of the designated route system, where it is available, to minimize impact to BLM-managed resource values. Future users may also be indirectly affected due to variable costs of doing business under the alternatives. These costs would be anticipated to be higher where no designated route exists to a potential permit site. There are no anticipated impacts to authorized users of designated utility corridors.

Access across public lands for the use and enjoyment of private lands would be addressed on a case-by-case basis where private landowners are adversely affected by route designation decisions. The decisions will not affect any right of access that may be determined to exist to private lands, including any Revised Statue 2477 right-of-way. Such access rights and specific requests for access would involve separate and independent analysis and decisions.

4.3.2 Livestock Grazing

Cattle grazing would not be affected by the **No Action**, the **Enhanced Recreation Opportunities and Access Alternatives** or the **Proposed Action**. Under the **No Action Alternative**, no changes in the existing 1985-1987 inventory of routes would be made with respect to access to existing range improvements for cattle allotments, which would leave the status quo in place for the management of

cattle grazing in the action area. This would also be the case under the **Enhanced Resource Protection Alternative** and the **Proposed Action**.

Under the **Enhanced Resource Protection Alternative**, some routes would be designated closed to eliminate duplication of routes that access the same springs. Otherwise this alternative is the same as the Proposed Action (access still available to ranchers in some areas, but not casual public use).

4.3.3 Minerals

No substantial direct or indirect impacts to access to minerals (locatable, leasable or salable mineral-construction-materials) or mineral development would result from the **four alternatives**. There is no significant difference between any of the NEMO Plan alternatives regarding vehicular access for mineral exploration and development. For all alternatives, open vehicular access is available to at least the general area for existing mineral interest. In areas with no current routes or open routes, operators, can obtain authorization for vehicular access through exploration and development plan approvals (the exception is special circumstances such as wilderness). For example, access to mining claims and mineral deposits can be provided under an approved Plan of Operations or Notice (43 CFR 3809.11), or to deposits of construction materials such as sand and gravel under a Free Use Permit or Contract for the Sale of Mineral Materials (43 CFR 3602).

Because most route closures occur in the **Enhanced Resource Protection Alternative**, this alternative would have a somewhat larger impact on prospecting and claim staking compared with the other alternatives. Although vehicular access can be authorized in areas closed to motor vehicles through a Plan of Operations or Notice, the paperwork and bonding requirements and costs tend to discourage many prospectors, especially small miners, from obtaining the necessary authorization. The overall impact on prospecting from this alternative is considered small because most route closures eliminate redundant routes rather than curtailing access to a general area of mineral interest.

There is no significant difference between alternatives regarding vehicular access to abandoned mines. Likewise, there is no significant difference among the four alternatives regarding safety issues such as vehicle operators being attracted to abandon mine sites or vehicles falling into mine shafts. If new vehicular access is required to reach an abandoned mine site, this can be authorized, in most situations, through the NEPA process.

4.3.4 Nonrenewable Energy

No substantial impacts to oil and gas, geothermal, or uranium/thorium development are anticipated from the proposed route network in **all alternatives** because the potential for the discovery and development of these resources is classified as low. Should there be future interest in exploration for these resources, it is anticipated that access can be provided through exploration and development plans such as an Application for Permit to Drill (oil & gas) or a Plan of Operations or Notice (uranium/thorium). An area with limited potential for the occurrence of geothermal water (for heating bath houses) in Tecopa is subject to a “no surface occupancy” stipulation in designated critical habitat for the Amargosa vole (Appendix H-2, Proposed NEMO Management Plan and Final EIS). The no-surface-occupancy stipulation would be imposed if the impact analysis supports that surface disturbance will adversely affect the vole or wetlands habitat, and USF&WS supports that jeopardy opinion would occur if surface activity were allowed. Geothermal exploration and development would not be affected by route designation in the four alternatives.

4.3.5 Recreation

This section relates the impacts of the four alternatives on recreation in the planning area.

Proposed Action

The Northern and Eastern Mojave Desert would continue to offer a variety of areas and types of routes that would meet the needs of recreational users. The regional recreational needs of the public were carefully taken into account as they were weighed against other resource concerns. As a result the proposed route network largely meets public recreational access needs. The proposed route network would maintain access to a wide variety of recreational opportunities such as vehicle touring, OHV recreation including the Dumont Dunes Open Area, dual sport events, historical trail touring, wind-driven vehicle use and other dry lake bed activities, equestrian use, camping, picnicking, photography, hunting, target shooting, hiking, wildlife watching, nature study, historical site visitation, and rock and mineral collection.

The **Proposed Action** would result in a net increase of 50 miles of open and limited routes in the designated route network as compared to the **No Action Alternative**, including the closure of 128 miles of routes. Because the designated open route system consists of 1,527 miles, or 90% of the entire inventoried network (including non-designated “volunteer or legacy” routes), visitor use on these designated open routes would increase. Recreational users who cannot participate in their desired activity in one location may seek an alternate site elsewhere. The result may be “spillover” into areas adjoining or nearby the original destination of the visitor. This increases the chances of random travel, perhaps by using closed routes or cross-country, in search of a new site. In order to minimize travel on closed routes or the creation of “volunteer routes”, additional signs and other informative media can be used to direct recreational users to other locations, via designated routes, where the desired type of recreation exists. This would, however, increase workload demands on BLM staff to maintain signs along designated routes. Given the known levels of current route use, this may not yet be a route network-wide problem. However, it may become one in the future.

Visitors would still be able to experience solitude in a number of natural areas due to the size of the area and the extensive open route network that would be provided. Examples of where this solitude can still be experienced occur in the wide-open expanses of the Saline Valley area.

The proposed network provides for relatively undiminished camping opportunities throughout the planning area. Campsites in the Panamint Valley, Fish Lake Valley, Sullarian Hills, Turquoise Mountains, and Amargosa Valley, as well as a number of other areas would still be largely accessible to the public. The staging areas, trailheads, and campsites would remain available for activities such as equestrian endurance rides, rock hounding, hiking, birding and hunting.

Abundant opportunities for both dual-sport motorcycle and 4WD touring still exist throughout the planning region. These recreational route opportunities traverse a variety of landscapes and provide a variety of route conditions for varying vehicle types and skill levels. More challenging or more technical routes were left in place wherever possible, such as those located in the mountainous terrain of the Panamint Valley and Nopah Range. The network provides connectivity of routes enabling long touring routes to be created that would enable visitors to travel over large areas. Thus, a visitor, whether on a dual-sport motorcycle, ATV, or SUV may engage in multi-hour to multi-day tours or travel along the many old historic roads that lace the planning area, such as the Mojave Road, the Spanish Trail, and some

segments of the Tonopah & Tidewater railroad. Many of these historic roads and railways are noteworthy for the distance and variety of terrain that they allow the experienced desert visitor to travel.

The needs of specific recreational interest groups would be met. These include:

Rock hounds and gem collectors. Access to a number of sites and destination areas identified as important during the planning process was retained. Some of these sites included spots in the Eureka Valley, Kingston Range and Owlshead area.

Equestrians, including endurance race riders. Access to staging areas is provided, and motorized routes that parallel equestrian endurance courses were, in many cases, retained as open routes. For example routes paralleling the Argus Range and Inyo Mountains Wilderness Areas often serve equestrians entering these wildernesses, and the Amargosa trail network serves equestrians in the Amargosa Valley area. This factor weighed prominently in keeping some of these routes open.

Upland game hunters. Routes that would enable volunteers (such as Quail Unlimited) and CDFG to maintain guzzlers were retained, as were other routes that served to access hunting areas that are only utilized during the fall hunting season.

Informal and formal historic sightseeing societies. Access was retained to many old routes, mining sites, and homesteads that are of special interest to these organizations. This is important because guidebooks, maps and magazine articles publicize these sites, making them popular destinations.

Special Recreation Permittees. Access to designated routes and staging areas would still be maintained through the route designation process for such permit holders as guided sheep hunts, vision quests, and guided horseback rides.

The proposed route network would have few unmet recreation access needs. Although some areas, particularly those identified as having higher than average resource values, may have fewer routes than other areas, those routes that do remain open would provide access to meet inventoried needs. In a few areas where alternative routes may no longer be available, specific recreational opportunities would be constrained due to resource concerns

Enhanced Recreation Opportunities and Access Alternative

The **Enhanced Recreation Opportunities and Access Alternative** shares many of the same beneficial and adverse affects on the motorized route network as the Proposed Action, although many fewer routes are closed, including fewer of the newly inventoried routes. The **Enhanced Recreation Opportunities and Access Alternative** closes 17 miles of route allowing for substantially more miles of accessible routes. **This Alternative** would result in a net increase of 161 miles in the designated route network, for a total of 1661 miles of designated open routes and 9 miles of limited routes. This increased number of miles of routes would lead to increased opportunities for dispersed camping and exploration relative to the other alternatives. However, it is not anticipated to provide a substantial increase in opportunity as most of the routes that would have otherwise been closed are considered duplicative, access private lands but do not provide substantial network connections, or access active mining activities and do not offer recreation opportunities that are substantially different from those offered by the Proposed Action. There are also some routes that the **Enhanced Recreation Opportunities and Access Alternative** includes based on the changes to the network brought on by the passage of the CDPA that either were not

considered in 85/87 or were closed at that time. Most, but not all, of these were also included in the **Proposed Action**.

Enhanced Resource Protection Alternative

The Enhanced Resource Protection Alternative would result in a slight increase of 4 miles in the designated network as compared to the **No Action Alternative**, including the closure of 174 miles of routes. The resulting network would include 1,485 miles of designated open routes, fewer than the other alternatives, but still 88% of all inventoried routes in the network. **The Enhanced Resource Protection Alternative** shares many of the same beneficial and adverse affects on the motorized route network as the Proposed Action. **The Enhanced Resource Protection Alternative** would close more routes of travel than the Proposed action. The additional route closures include wash routes, routes that access riparian areas, additional trailheads to wilderness or routes adjacent to wilderness, and routes to historic mines, and routes with other sensitive resource values. These additional closures would impact recreational users to some degree by reducing the opportunity for dispersed camping, hunting, rock hounding, and exploration.

No Action Alternative

If the **No Action Alternative** were chosen, no changes would be made to the 85/87 route designations, except for those made as a result of the California Desert Protection Act of 1994 and NEMO (2002) or other CDCA plan amendments. **The No Action Alternative** shares many of the same beneficial and adverse affects on the motorized route network as the Enhanced Recreation Opportunities and Access Alternative, except that, as a baseline designation it does not consider changes to the network since the last designation effort on a programmatic basis. Each route would be evaluated on a case-by-case basis and may be determined to be unauthorized, appropriate for plan amendment, specific to a permit and its existing rehabilitation conditions, and/or subject to evaluation at the end of the permit terms. This network would provide opportunities for dispersed camping and exploration. However, it is not anticipated to provide a significant increase in opportunity as most of the routes that would have otherwise been closed are considered duplicative, access private lands but do not provide substantial network connections, or access active mining activities and do not offer recreation opportunities that are significantly different from those offered by the Proposed Action. This is due in part because the **No Action Alternative** does not provide additional open route designations for newly inventoried routes, and therefore the overall open route network is fairly similar to the **Proposed Action**.

Since the 1985-87 route designations, several routes have been either created or identified and inventoried that have not yet been through the plan amendment process and these routes would not be part of the designated route network under the **No Action Alternative**. The routes would be treated on a case-by-case basis. Some routes would be reclaimed, some routes would likely continue to be used for the time being until a lease or permit expires and they are reclaimed or their fate is re-examined, and some routes may be individually proposed for plan amendment at some future time.

4.3.6 Vehicle Access

This section relates the impacts to motorized vehicle access of the four alternatives.

Proposed Action

The Northern and Eastern Mojave Desert would continue to offer a route network that largely meets public motor vehicle access and transportation needs. Connectivity of the route network would be maintained and the public would still be able to access all vehicle accessible areas within the Northern and Eastern Mojave Desert without difficulty. Most routes proposed for closure under **this Alternative** are considered duplicative and do not provide substantial network connections, and the **Proposed Action** includes routes that are not identified in the **No Action Alternative**. The regional access needs of the public were carefully taken into account as they were weighed against resource concerns and commercial and private property interests. As a result, the proposed route network largely meets public recreational and commercial motorized access needs.

The **Proposed action** would maintain access to a wide variety of public recreational opportunities such as vehicle touring, OHV recreation including the Dumont Dunes Open Area, dual sport events, historical trail touring, wind-driven vehicle use and other dry lake bed activities, equestrian use, camping, picnicking, photography, hunting, target shooting, hiking, wildlife watching, nature study, historical site visitation, and rock and mineral collection. Motor vehicle access and transportation needs for recreational permittees that utilize open routes would be maintained.

The route network has taken into consideration commercial interests in the development of the casual use network, including the following:

- Public safety and protection of valid existing rights associated with railroad rights-of-way, utility easements such as electrical transmission lines, communication towers (both public and military) and underground communication lines, pipeline corridors, support facilities, and the life of support and maintenance roads that may also serve public purposes;
- Protection of ranching facilities including outbuildings, corrals, water tanks, wells, and service roads, and maintenance of access to public watering facilities; and,
- Public safety and protection of valid existing rights and patented property associated with mining facilities including tunnels, pits, buildings, service roads, patented mining claims, and maintenance of public access to community pits.

Private property access would be provided to each known privately held parcel. Private property interests have been considered and balanced against public access needs, to the extent feasible in a programmatic document. Some site-specific follow-up agreements may be necessary; to provide assurances that private property and public access interests will continue to be balanced. Factors that were taken into consideration in determining the appropriate level of access were the size and remoteness of the parcel, proximity to other areas of development and/or occupancy, topographic features (e.g. canyons or ridgelines) that might bisect the property and thereby necessitate two or more points of access, safety issues, and connectivity to the overall routes of travel network and the need for the public to have through access. Routes were designated for limited access both for safety reasons and to eliminate trespass issues, as feasible. For network routes designated open that go through rather than dead-end on private lands, the potential need for easements was identified.

The **Proposed action** would have few unmet motor vehicle access and transportation needs. Although some areas, particularly those identified as having higher than average resource values, may have fewer

routes than other areas, those routes that do remain open would provide access to meet inventoried needs. In some areas, however, access needs (primarily recreational) would be constrained due to resource conflicts or would result in a short hike to a recreational destination (e.g., a spring). These shortfalls in access would be compensated by available access for similar opportunities elsewhere.

Enhanced Recreation Opportunities and Access Alternative

Like the **Proposed Action**, the **Enhanced Recreation Opportunities and Access Alternative** would continue to offer a route network that largely meets public motor vehicle access and transportation needs. Connectivity of the route network would be maintained and the public would still be able to access all vehicle accessible areas within the Northern and Eastern Mojave Desert without difficulty. The 143 miles of additional routes would lead to increased opportunities for vehicle access in some remote locations. However, it is not anticipated to provide a substantial increase in opportunity as most of the routes that would otherwise be closed are considered duplicative and do not provide important network connections.

Enhanced Resource Protection Alternative

Generally, the route network provides a similar level of connectivity and access as the **Proposed Action**. Higher numbers of duplicate routes have been eliminated allowing fewer choices of routes to access any particular part of the region. This will cause some inconvenience to visitors as they may be required to travel a farther distance to access the same point as compared to the **Proposed Action**. Additionally, the **Enhanced Resource Protection Alternative** offers a reduced opportunity for solitude provided by primitive dispersed car camping. The **Enhanced Resource Protection Alternative** includes 135 miles of routes that are not identified in the **No Action Alternative**.

This alternative would close three routes that impact the access network in the central portion of the planning area, north of I-15 and a fourth in the northern portion of the planning area. The first is a section of the road on or adjacent to the historic T&T Railroad bed between Val Jean and Dumont Dunes. This section of road is an important connection in the route network in this region. Off-highway visitors traveling from the area northeast of Baker to the Tecopa area rely on this route for access. The second closure is a portion of the Old Traction Road (AR381), the northwest boundary road of the Resting Springs Range Wilderness Area. This road provides access to the northwestern portion of the Resting Spring Range Wilderness from both the California and Nevada. Also, the **Enhanced Resource Protection Alternative** does not provide a connection between AR162 and AR0411 in the California Valley region. Again this is an important travel corridor for the region. Finally, the **Enhanced Resource Protection Alternative** closes the Wild and Scenic River route corridor along Cottonwood Creek near the Mono/Inyo County Lines. This 4-wheel drive route is lightly utilized, and provides the only motorized access to this area for non-motorized water-based recreation (fishing, camping, etc).

No Action Alternative

If the **No Action Alternative** were chosen, no changes would be made to the 1985-87 route designations, except for those made as a result of the California Desert Protection Act of 1994 and NEMO (2002) or other CDCA plan amendments. This increased number of miles of routes would lead to increased opportunities for vehicle access in some remote locations; however many are also duplicative adjacent routes. The No Action Alternative is not anticipated to provide a substantial increase in opportunity as most of the routes that would have otherwise been closed do not provide substantial network connections.

Since the 1985-87 designations, approximately 168 miles of routes have been either created or identified and inventoried that have not yet been through the plan amendment process and these routes would not be part of the designated route network under the **No Action Alternative**. The routes would be treated on a case-by-case basis. Some routes would be reclaimed, some routes would likely continue to be used for the time being until a lease or permit expires and they are reclaimed or their fate is re-examined, and some routes may be individually proposed for plan amendment at some future time.

4.4 Special Designations

There are no national recreation areas or National Trails affected by this plan amendment. Fourteen Areas of Critical Environmental Concern are potentially affected, and are discussed below. Specially designated hiking trails are discussed in the recreation section, as are nationally recognized trails. California Backcountry Discovery Trail System has not yet been designated in this area, but portions of four backcountry trail systems have been identified on BLM-managed public lands in the entire NEMO planning area (2002) and are under consideration. These are addressed in a section below. Eligible wild and scenic rivers within the planning area are potentially affected and are also discussed below.

4.4.1 Areas of Critical Environmental Concern

Proposed Action

The **Proposed Action** will enhance the conservation of resources within the Areas of Critical Environmental Concern (ACEC) by closing routes, increased monitoring and law enforcement, and public education, particularly Denning Springs, Carson Slough, Upper Amargosa, and Central Amargosa. See Table 4- 3 at the end of this Section for specific ACEC differences by Alternatives. Some OHV activity will continue through the Upper Amargosa and the Central Amargosa on designated open routes. These routes are currently lightly used, with the exception of Sperry Wash on the southern boundary of the Central Amargosa, which provides a primary gateway to the Dumont Dunes OHV Area. A wilderness area separates this route from direct access to the Central Amargosa, and provides a natural buffer to impacts on resource values in the Central Amargosa from its use.

Enhanced Recreation Opportunities and Access Alternative

The **Enhanced Recreation Opportunities and Access Alternative** makes the assumption that additional routes and enhanced maintenance under this proposal would provide for additional vehicular access that would not substantially impact sensitive resource values. Impacts may be mitigated, as appropriate, consistent with federal law. Overall, this alternative would be expected to have similar impacts to the **No Action Alternative**, and the most potential for adverse impacts overall. These potential impacts would increase in the future due to increased use in popular, including sensitive, areas consistent with anticipated population growth. It should be noted however, that all actions approved herein would be consistent with site-specific protection strategies in approved ACEC Plans, or would entail follow-up analysis (see Table 4-3 for specific ACEC differences).

Enhanced Resource Protection Alternative

The **Enhanced Resources Protection Alternative** will have a similar effect on resources within the ACEC as the **Proposed Action** but will be slightly more beneficial since vehicular access to sensitive resources would be the most limited (see Table 4-3 for specific ACEC differences).

No Action Alternative

The **No Action Alternative** would not change the potential level of impacts on sensitive resources by OHV use and or vehicular traffic within the ACEC. Some ACEC have already undergone route designation to minimize effects to sensitive resources, while other ACEC have not (generally those that do not yet have an ACEC Plan). The **No Action Alternative** would have some negative impacts on ACEC. Some effects, while minor with present levels of use, could become problematic as use increases with anticipated population growth into the future (see Table 4-3 for specific ACEC differences).

Table 4-3 presents a summary of specific ACEC in the Eastern Mojave Routes Planning Area with a focus on their values and potential impacts from the various alternatives.

Table 4-3. Areas of Critical Environmental Concern (ACEC) in the NEMO Routes Planning Area

Name & Size	Values	Impacts	Discussion
Carson Slough*	T&E plant	Beneficial impacts to Amargosa Niterwort under ERP Alternative, also to a lesser degree under PA. No change under No Action Alternative and impacts from additional casual use of the route are minor. EROA Alternative impacts are also minor, since it is an existing route, not well used, that does not connect to the network.	No substantial differences in open routes in Proposed Action and Enhanced Resource Protection Alternative within the ACEC. ERP also closes routes to limit access Alternative from the south to the ACEC. No Action and Enhanced Recreation Opportunities and Access Alternatives make no changes and one existing route remains open in Amargosa Niterwort habitat that provides access to a mine. In addition, a newly inventoried route on the western boundary of the Amargosa Niterwort habitat is open under the EROA Alternative.
Central Amargosa*	Riparian & T&E, Prehistoric and Historic values, including mining; Non-motorized recreational; Geologic; Wild & Scenic River; Wilderness Values (part).	ERP Alternative has beneficial impacts, other alternatives no change.	No substantial differences in open routes in no action, Enhanced Recreation Opportunities and Access Alternative and Proposed Action. Enhanced Resource Protection Alternative eliminates vehicle traffic into Willow Wash that drains into the Amargosa from the east.
Cerro Gordo 9,073 acres	Extensive prehistoric and historic values, including mining resources; public interpretation and scientific use; Biological Resources.	No substantial impacts to biological or cultural resources.	No substantial differences in open routes.

NEMO-Proposed Route Designation-Plan Amendment and EA

Name & Size	Values	Impacts	Discussion
Denning Spring 465 acres	Mesquite Bosque, Spring, Prehistoric and historic values. Prehistoric resources include temporary habitation, intaglio(s), lithic manufacture sites and historic mining. Scientific use.	No substantial impacts to biological and cultural resources under ERP Alternative or Proposed Action. No Action and Enhanced Recreational Opportunities and Access Alternatives could have adverse impacts that would require additional resource outlays to effectively mitigate.	Enhanced Resource Protection alternative closes entire routes to Denning Spring and Proposed Action provides access up to and eliminates vehicle traffic through Denning Spring UPA and points south to Fort Irwin NTC.
Halloran Wash 2,500 acres	Prehistoric and historic values. Halloran Spring site located on historic transportation route. Lithic procurement localities and rock art present within Halloran Wash region. Native American values and scientific use.	No known differences or substantial impacts to biological or cultural resources.	Archaeological inventory necessary to adequately evaluate existing cultural resources within boundaries of existing ACEC.
Kingston Range 19620 acres	Sp. status plants & Valuable WL & Habitat. Prehistoric and historic values.	No substantial impacts to portion South of Smith Talc Road. North of Smith Talc Road, Enhanced Recreational Opportunities and Access and No Action Alternatives could have adverse impacts to wash and cultural resources that would require mitigation measures to mitigate adverse impacts to cultural resources.	Non-wilderness portion of ACEC has no difference between alternatives. Primary N/S route open under all alternatives. Enhanced Resource Protection Alternative would limit vehicular access to fragile cultural properties north of Smith Talc Road.

NEMO-Proposed Route Designation-Plan Amendment and EA

Name & Size	Values	Impacts	Discussion
Mesquite Hills/ Crucero 5002 acres	Prehistoric and historic values. Prehistoric Crucero Barstow habitation, faunal, floral, and lithic reduction, rock alignments/features, historic transportation and mining. Scientific use.	Most routes in ACEC have been closed. No substantial impacts to cultural or biological resources.	No substantial differences in alternatives.
Mesquite Lake 7251 acres	Limited prehistoric values and Traditional Cultural Property. Mesquite trees around old lakebed provided abundant plant food resources to Native Americans during Prehistoric and Protohistoric Periods. Native American Traditional Cultural Property and scientific use.	No substantial impacts to cultural or lakebed resources within ACEC.	No substantial differences in alternatives.
Mountain Pass 628 acres	Paleontological values. The Dinosaur Trackways represents the only known occurrence of fossil Mesozoic reptile tracks in California. Three Bipedal and 4 quadrupedal reptile species Tracks have been recorded on-site. Public interpretation and scientific use.	No substantial impacts to paleontological resources within ACEC	Under all alternatives, road closure of entrance to resources, and planned fencing/gating/parking and interpretative trails will minimize unauthorized off-road access from OHV traffic east of ACEC, consistent with the existing ACEC Plan.
Saline Valley	Biological Resources	None	Bulk of area transferred to DVNP, remainder in Wilderness

Name & Size	Values	Impacts	Discussion
Salt Creek Hills 1,743 acres	Riparian and Spring values, Prehistoric and historic values. Prehistoric resources include temporary habitation sites, food procurement sites, lithic manufacture, historic mining and historic transportation routes. Scientific use and resource interpretation for general public.	No significant impacts	No differences in open routes. Fencing has been erected to minimize unauthorized off-road access from OHV area to the north.
Upper Amargosa*	Biological & Cultural Resources	ERP Alternative would result in beneficial impacts to cultural and riparian resources. Proposed Action would result in minor beneficial impacts to biological resources.	Proposed Action and ERP Alternative have a few and several more routes closed in and through the ACEC.
Warm Sulphur Springs	Biological Resources	Low from all alternatives	No Plan written, scheduled for 2004/5. Single major route passes to east of the ACEC, open under all alternatives.
White Mountain City 32 acres	Prehistoric and extensive historic values. Prehistoric values include significant habitation sites, rock shelter(s), pictographs and petroglyphs, and remnants of a 19 th Century mining town. Native American values, public interpretation and scientific use.	No substantial impacts.	No differences in open routes.

4.4.2 California Back Country Discovery Trail System

Under all of the alternatives, most of the routes that are also identified in the proposal for the California Backcountry Discovery Trail system would be designated open. In those cases where certain routes were recommended for closure under one or more alternatives due to resource concerns, alternative open routes are available to maintain the continuity of the backcountry touring system. This includes portions of four

proposed CBDT Routes: These are CBDT Routes 5, 6, 7, and 9. Together they offer a comprehensive look at the California Desert, its resources and its history.

Proposed CBDT Route 5 enters the NEMO Routes Planning area in the Panamint Valley. Route 5 turns and heads through Darwin and then northwest of Death Valley on the east side of the southern Inyo Mountains, ending after traveling through the Historic Mining town of Cerro Gordo. CBDT Route 6 follows the Historic Mojave Road. The Mojave Road, also known as the Old Government Road, also began as an Indian trading route. In the late 1800's, the U.S. Calvary began using the route as western settlement began to move through this area. The road is rich in natural resources, history and prehistory. Proposed CBDT Route 7 enters the NEMO Routes Planning area west of Baker. Route 7 works its way to the Kingston Corridor and then heads through Tecopa on its way to its final destination, Death Valley Junction. Proposed CBDT Route 9 enters the NEMO Planning area (2002) north of the Sacramento Mountains after crossing under I-40 and continues northwest to Piute Springs where it links with CBDT Route 6.

The CBDT routes are expected to be more heavily used than surrounding open routes due to the additional maps, publicity and signage associated with them. This trail system would result in more adverse affects to resources on these routes and fewer adverse affects to avoided resources in other areas, as the CBDT routes are not likely to appreciably increase overall touring beyond that already anticipated. Rather, the California Backcountry Trail System will provide an additional recreational opportunity that provides a relatively safe and accessible scenic touring experience to the diverse audience already anticipated in the future.

4.4.3 Wild and Scenic Rivers

Proposed Action

The routes within and in the vicinity of the area of potential affect of the Amargosa River segments that have been found eligible for the National Wild and Scenic Rivers System would not be affected under the **Proposed Action**. The Central Amargosa Canyon was closed to vehicular traffic prior to the CDCA Plan. In addition, route designation that occurred at the time of the development of the Amargosa Area of Critical Environmental Concern Plan (1983) covered the remaining Wild and Scenic River area that is potentially affected by NEMO Routes of Travel. The area within the Dumont Dunes OHV Open Area will not have routes designated within its boundaries, consistent with the CDCA Plan. One route on the boundary of the OHV area adjacent to Sperry Wash is proposed for closure and would result in minor benefits to the Amargosa and its watershed.

Cottonwood Creek would be available for use under the **Proposed Action**, which would result in continued 4-wheel vehicular access to the diverse recreational and excellent scenic "outstandingly remarkable values" that contributed to the eligibility and potential recreational classification. The rich diversity of wildlife, and in particular bird species, and associated habitat, may be adversely affected by vehicular use, particularly in the vicinity of potential nesting habitat. These impacts are not substantial, given the difficulty and relative isolation of the Cottonwood Creek route, which results in a relatively low level of use.

The Surprise Canyon Route is being analyzed through a separate environmental document, and is not part of this designation effort or planning area. There would be no affect under the **Proposed Action**.

Enhanced Recreation Opportunities and Access

The **Enhanced Recreation Opportunities and Access Alternative** would have the same effects on Wild and Scenic Rivers as the **Proposed Action**.

Enhanced Resource Protection Alternative

The **Enhanced Resource Protection Alternative** would have the same effects on Wild and Scenic Rivers as the **Proposed Action** except that Cottonwood Creek would not be available for motor-vehicle use under the **Enhanced Resource Protection Alternative**, which would result in elimination of vehicular access to the water-based recreational and scenic outstandingly remarkable values (ORV) that contributed to the eligibility and potential recreational classification. The segment would still be eligible under the National Wild and Scenic Rivers Act for its recreational and scenic ORV, given the non-motorized activities and values within the river segment. The rich diversity of wildlife, and in particular bird species, and associated habitat, would benefit by the elimination of vehicular use, particularly in the vicinity of potential nesting habitat, as would equestrian and other non-motorized trail use. These benefits are not substantial, given the relative isolation of the Cottonwood Creek route that currently results in a relatively low levels of conflict, but may increase in the future with increased vehicular use or with the verification of impacts to nesting T&E birds.

No Action Alternative

The **No Action Alternative** would have the same effects on Wild and Scenic Rivers as the **Proposed Action** except the route on the boundary of the OHV area adjacent to Sperry Wash would not be designated closed and would not result in minor watershed benefits to the adjacent Amargosa Wild and Scenic River segment and its watershed.

4.4.4 Wilderness and Wilderness Study Areas

All routes in federally designated wilderness areas were closed to vehicle use with the designation of the areas as wilderness by signing of the California Desert Protection Act in 1994. Therefore, all alternatives do not include the designation of any routes of travel (either open or closed) within wilderness for casual public use. All routes within wilderness were closed with their designation as wilderness under the California Desert Protection Act (1994). There may be a few routes within wilderness that show up on NEMO route designation maps as closed, such is the case with route number NN 0398 in the Mesquite Mountains Wilderness. However, this is just a correction to inventory data and not an actual change in designation or management.

The route designation process may help to reduce illegal vehicle use in wilderness by further educating the public on where open routes are located and where vehicle use is allowed and prohibited in the planning area. There are several routes under the **Enhanced Resource Protection Alternative** proposed for closure that provide access to National Park Service and BLM wilderness areas and boundaries because they provide multiple trailhead access points from a similar direction to the wilderness, have resource sensitivities, and/or have proven difficult to manage in the past with existing and anticipated future resources. A few of these were also selected for limitation or closure under the **Proposed Action**.

Wilderness Study Areas (WSA) was not a consideration for closure under the **Enhanced Recreation Opportunities and Access Alternative** and was not the primary consideration for closure under the

Proposed Action. Routes may have been limited or closed for other reasons under the **Proposed Action**. The fact that a route is located in a WSA was taken into consideration in the final analysis, based on WSA guidance of 43 CFR 8342.1(a). Under the **Enhanced Resource Protection Alternative**, positive steps were taken to enhance an area's potential wilderness values by decreasing route density in WSA if the overall route network would not be compromised. Therefore, the **Proposed Action** and **Enhanced Resource Protection Alternative** both have a net benefit of reduced miles of routes in WSA, and the **Enhanced Resource Protection Alternative** makes the greatest reduction of routes within WSA.

4.5 Socioeconomics

The following summaries the socioeconomic impacts of the four alternatives

4.5.1 Proposed Action

The **Proposed Action** would meet the access needs of the resident and visitor population to the East Mojave for transportation, work, visiting, and recreation for the reasonably foreseeable future. Economic effects include small increases in the cost of doing business in some more remote areas, and decreases in other areas, as compared to the **No Action Alternative**. The beneficial economic effects of the alternative include indirect benefits to tourism.

4.5.2 Enhanced Resource Protection Alternative

The **Enhanced Resource Protection Alternative** would meet access needs of the resident and visitor population to the East Mojave for transportation, work, visiting, and recreation for the reasonably foreseeable future. Economic effects include moderate increases in the cost of permittees doing business in some areas, and decreases in other areas, as compared to the **No Action Alternative**, and moderate increased recreation management costs. Other economic effects of the alternative include indirect benefits to tourism.

4.5.3 Enhanced Recreation Opportunities and Access Alternative

The **Enhanced Recreation Opportunities and Access Alternative** would meet the access needs of the resident and visitor population to the East Mojave for transportation, work, visiting, and recreation for the reasonably foreseeable future. Economic effects include small decreases in the cost of permittees doing business in some areas, as compared to the **No Action Alternative**, and moderate increased resource protection costs. The beneficial economic effects of the alternative include indirect benefits to tourism.

4.5.4 No Action Alternative

The **No Action Alternative** would meet the access needs of the resident and visitor population to the East Mojave for transportation, work, visiting, and recreation for the reasonably foreseeable future. Economic effects include small increases in the cost of doing business in some more remote areas, and decreases in other areas, and moderate increased resource protection and recreation management costs. The beneficial economic effects of the alternative include indirect benefits to tourism.

4.6 Environmental Justice

Executive Order 129898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires each federal agency to “Identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority populations and low-income populations”. Following CEQ guidance, the BLM analyzed the effect of its actions on human health which include bodily impairment, illness, infirmity or death, and environmental effects which include ecological, cultural, human health, economic or social impact. General socioeconomic impacts are addressed separately.

The analysis of the environmental consequences of the alternatives, including the Proposed Action, did not demonstrate or reveal any direct or indirect effects on human health. The alternatives have inconsequential effects on air and water quality and do not result in production of toxic or hazardous products. The **Proposed Action** results in minor loss of recreational opportunities such as hunting, camping, vehicle driving and rock hounding and overall provides casual access throughout the planning area. There is no evidence to indicate that the minority and/or low-income populations would be disproportional consumers of these recreational opportunities. The Proposed Action or any potential decisions that would result from the Proposed Action or other alternatives do not affect the travel, dining and recreational services and associated employment, which customarily involve low-income workers.

Within the NEMO Routes planning area, the population was invited to participate through the mass media, and mailings to organization and to individuals. Public meetings and/or workshops were conducted in Ridgecrest, Tecopa, Yucca, Lone Pine and Las Vegas. There were consultations with the Fort Mojave, Chemehuevi, Las Vegas Piute, and Timbisha tribal representatives and issues from these meetings, consultations and from written (including email) comments were addressed in this plan (see Chapter 5).

4.7 Cumulative Impacts

Bureau of Land Management regulations implementing NEPA require that the cumulative impacts of a proposed action be assessed. CEQ regulations implementing the procedural provisions of NEPA define cumulative effects as: “The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” (40 CFR 1507)

This cumulative analysis tiers off of the Cumulative Analysis found in the Northern and Eastern Mojave Proposed Plan/Final Environmental Impact Statement (July 2002). The cumulative analysis in this document therefore does the following:

- Briefly summarizes the previous cumulative analysis as it relates to access issues;
- Focuses on the relationship of the overall cumulative effects already discussed in the 2002 document and the specific analysis in this document for the NEMO Routes of Travel planning area; and
- Clarifies and/or modifies the previous cumulative analysis with new information from this analysis as appropriate.

Where there has been no change in the previous analysis the conclusions of the previous document are briefly summarized and the reader is referred to the NEMO Proposed Plan/FEIS for more detail.

The NEMO Proposed Plan/FEIS (2002) cumulative analysis lists and briefly describes many of the other activities and plans occurring in Southern California and Southwestern Nevada that impact various activities and uses within the NEMO Routes planning area. The NEMO Proposed Plan discusses these and other factors that affect access in the NEMO Routes planning area and the cumulative effects of access changes in the cumulative effects region (CER) and relates both of these to past, present, and reasonably foreseeable actions that would occur as a result of designation of routes in NEMO. The CER for which effects of route designation for the NEMO Routes of travel area and other past, proposed, and reasonably foreseeable actions that would be cumulatively recorded or experienced varies by resource as noted herein, but generally includes the entire California Desert Conservation Area (CDCA) and southwestern Nevada, and, where appropriate, a wider regional context. Therefore, there are two main analytical frameworks considered in this cumulative effects analysis of route designation for the NEMO Routes of travel area:

- Route designation activities or activities with similar impacts to route designation (loss or gain of public or other vehicle access to areas) that are occurring within the NEMO Routes planning area and the CER.
- Other activities within the current planning area that similarly affect (as do access changes) resource values and uses.

The cumulative analysis within the Northern and Eastern Mojave Proposed Plan/Final Environmental Impact Statement addresses cumulative effects for the following resources and activities/uses which may be affected by or may affect access in the planning area: vegetation and wildlife; air quality; cultural resources and Native American values; recreation resources and activities; minerals and mining; vehicle access; and socioeconomic resources. The analyses for these issues are adequately addressed² and would not be substantially modified by the **Proposed Action** and **Alternatives** except with respect to vehicle access and recreation resources and activities. Therefore this cumulative treatment will focus on how the adoption of the **Proposed Action** as the **Proposed Plan** would modify the cumulative effects with respect to these two factors. In addition, the socioeconomic analysis provides additional local context for regional analytical framework.

4.7.1 Major Past, Present, and Reasonably Foreseeable Actions.

As stated in the NEMO Proposed Plan/EIS (2002), one of the CDCA Plan (1980) decisions included designations of Routes of Travel in limited use management areas. These were to be accomplished later. In 1985 this was accomplished in areas of public lands overseen by the Ridgecrest field office and in 1987 in areas of public lands overseen by the Barstow and Needles field offices. Route designation was accomplished in the same time framework in other parts of the CDCA to implement the CDCA Plan.

² One modification would be to amend the importance of the continuing urbanization and growth in areas immediately adjacent to the planning area, Pahrump, NV, and the greater Las Vegas, including the Stateline area as a potential threat to vegetation and wildlife habitat in the Amargosa watershed. Potential loss of habitat, including sensitive habitats, may come as a result of the loss of water from depleted watersheds, as groundwater is redirected across the Stateline to feed the fastest growing communities of the nation, those in southwestern Nevada. Many of the species in this basin are water-dependent, and dewatering the Amargosa aquifer may have as yet unanticipated indirect affects on wetland habitats. Ongoing aquifer studies are underway to better understand the capacity and linkages between the groundwater and surface waters in the area, and the limits of acceptable change to the system.

There have been several substantial actions and proposals since these route designations that affect access in the desert. These actions have resulted or have the potential to add to cumulative impacts for one or more resources being affected by the NEMO Routes of Travel designations. A listing of the most significant of these follows. Whether or not these are individually mentioned in the sections, they have or have the potential for substantial effects, based on the amount of land base they may affect or change in land use they could produce, not only within their boundaries, but regionally (at least indirectly).

- **Bioregional Plans:** West Mojave (WEMO), Northern & Eastern Colorado Desert (NECO), Northern & Eastern Mojave Desert (NEMO), Coachella Valley, and Imperial Sand Dunes Plans collectively encompass most of the California Desert Conservation Area. Las Vegas RMP encompasses southwestern Nevada adjacent to the NEMO planning area (2002), and the Colorado River Multi-species Conservation Plan encompasses a strip along the Colorado River in northwestern Arizona adjacent to the CDCA. All of these have recently been approved or are anticipating approval shortly to address protection of sensitive and listed species, and other goals as identified in each plan.
- **Route designation plans.** WEMO, NECO, NEMO (part), WECO, Imperial Sand Dunes Plan and LVRMP all have included or updated routes of travel designations for all or part of the planning areas, often in conjunction with the above mentioned bioregional plans.
- **Route Closures pursuant to Lawsuit:** Various vehicular closures (eleven in all) put in place pending completion of specific bioregional plans or otherwise fulfilling lawsuit requirements that have resulted in interim loss of access in low-use to high-use areas throughout Southern California for multiple years.
- **Fort Irwin Military expansion Act of 2001:** Legislation approved in 2001 expanded the Fort Irwin boundary south, east and west by about 130,000 acres, including approximately 50,000 acres that were within the 1987 NEMO Routes of Travel designation area. BLM administered, state, and private lands were transferred to the U.S. Army. Impacts of the action are subject to mitigation, to be identified in an ongoing Congressional EIS.
- **California Desert Protection Act of 1994 (CDPA):** Legislation that established 69 wilderness areas, including nearly 3.8 million acres of BLM managed lands, the Mojave National Preserve (MNP), and expanded Joshua Tree and Death Valley National Monuments and redefined them as National Parks. With this act, half of the CDCA was included in military reservations, national parks, or wilderness areas. The remaining lands are equally split between private and BLM-managed public lands.
- **California Wild Heritage Act of 2002 (Pending S 2535):** A Senate bill to establish additional wilderness areas in California, including up to approximately 350,000 acres of lands within the CDCA that are primarily BLM-managed lands.
- **Wildlands-Catellus Acquisition and Exchange:** Approximately 322,500 acres of land that recently were added to the lands managed by the BLM.
- **Urban expansion and Population Growth:** The expansion in population and supportive developments within and adjacent to the NEMO Routes planning area. The most notable areas are Las Vegas and Pahrump Nevada and adjacent areas of southwestern Nevada. A secondary

urban expansion phenomenon is occurring in areas of Southern California, including parts of San Bernardino and Riverside County that provide visitors to the NEMO Routes planning area.

- **Interstate I-15 Expansion** – Features include a third lane in both directions to handle increasing traffic.

4.7.2 Vehicle access

The list of cumulative effects on vehicular access is substantial and were analyzed in the NEMO Plan/FEIS (2002, p.4-144), which concluded the following with respect to casual vehicular access within the CDCA,

“taken together with reasonably foreseeable actions, cumulatively significant impacts to access have occurred by a foreclosure of substantial portions of the public access network on public lands that is no longer available by motor-vehicle or has significant restrictions to access, and route designations further contribute to those impacts by providing some limitations to access on the remaining public route network. These impacts are somewhat offset by the provision of a reasonable public access network, that is usable and meets public needs.”

The NEMO Plan/FEIS (2002, p.4-144) analyzed cumulative effects of route designation in the CDCA in conjunction with the identification of a process for route designation in the planning area, and the specific designation of routes within NEMO desert tortoise bioregions³. Table 4-4 summarizes the miles of route designation (and area designation for the Imperial San Dunes Recreation Area Management Plan) in the CDCA.

Table 4-4. Summary of Miles of Open, Limited and Closed Routes within the CDCA

Plan Name	Plan Status	OPEN Route Miles	LIMITED Route Miles	CLOSED Route Miles	Planning Area (acres)
NECO	ROD 12/20/02	4,739	4	239	5,500,000
NEMO— In Desert Tortoise Bioregions	ROD 12/20/02	651	66	70	400,000
Outside Desert Tortoise bioregions	This Plan Amendment	1,527	32	128	2,900,000
WECO	DR 01/31/03	1,116	279	922	475,000
West Mojave Routes	DR 06/30/03	5,054	51	2,391	9,500,000
ISDRAMP	Final EIS 05/03	99,581 ac.	33,289 ac.	26,202 ac.	160,000
Coachella Valley Plan Amendment	ROD 12/27/02	47	0	71	1,200,000

Note: DT= Desert Tortoise, ROD = Record of Decision, DR= Decision Record, EIS= Proposed Plan and Environmental Impact Statement

³ Desert tortoise bioregions are comprised of USFWS critical habitat, and BLM designated Category I and II habitat.

This analysis focuses on the additional designation of routes within the NEMO Routes planning area (areas outside desert tortoise bioregions) and whether the **Proposed Plan** or other Alternatives incrementally result in a substantial change in the previous NEMO analysis.

Approximately 24 percent of the public land acreage within the CDCA (about 2.3 million acres) is within the NEMO Routes Planning area. About 55% of this is non-wilderness, and is addressed in this **Proposed Plan** Amendment. Some of the area designated under this amendment includes wilderness study areas that were not designated as wilderness, and are awaiting Congressional action to either designate or release lands. Additional loss of access through future Congressional wilderness designations could have substantial incremental effects on vehicular access and the route network, including routes that provide the remaining connector routes between areas, with notable exceptions.⁴

Interim closures have affected approximately 1 million acres of land in the CDCA pending the outcome of route designation analyses, ranging from closures in habitat, wash areas and camping closures for desert tortoise that provide for some vehicular access through areas, seasonal route closures in bighorn sheep habitat, and partial OHV open area closure to all vehicular access. These are not located in the NEMO Routes planning area and would not be directly affected by this plan amendment.

Approximately thirty percent of these closures have now expired. Interim closures in two of these areas, covering approximately two-thirds of the routes in desert tortoise habitat within West Mojave, and approximately 49,300 acres (36.7%) of Pierson's milkvetch habitat in the Imperial Sand Dunes OHV Recreation Area are still in effect. All of the interim closures have resulted in loss of vehicular access for a period of approximately three years on average except in these latter two areas that will be available when decisions are signed, anticipated later this year.

Route networks adopted during subsequent planning analyses have incorporated interim route closures to some extent and modified and/or adopted other strategies elsewhere. The loss of access from interim closures in portions of San Diego County (ISDRA) has been one of the factors contributing to increased recreational use within and adjacent to the Dumont Dunes OHV Open Area in the NEMO Routes planning area in the last few years, as discussed in the NEMO Proposed Plan/FEIS (2002).⁵

Based on this analysis, route designation within the NEMO Routes area could potentially have a substantial incremental effect on cumulative vehicular access and the CDCA route network depending on the answers to the following two questions:

- How much is vehicular access constrained on its face value?
- Are there specific aspects of vehicular access that are substantially further limited or substantially more available than previously as a result of this designation effort?

⁴For example, the DV17 WSA that separates Death Valley National Park from Fort Irwin National Training Center does not provide any substantial public lands access network access, although it may provide local access if the adjacent jurisdictions make routes into the area available.

⁵ Routes are not designated within NEMO OHV Open areas. Some routes within open areas continue outside of open areas, and some routes serve as the major access points into and out of OHV Open Areas.

All alternatives provide a serviceable and useable system of routes of travel for casual vehicular use within public lands. Each alternative provides a different balance of access versus protection of sensitive resource values, and consideration of non-casual route user needs⁶. All regional routes (459 miles) in the network are open under all alternatives. Under the **Proposed Plan**, 1,527 miles (90%) of routes would be open including 85 percent of the new routes not previously designated in 1985 and 1987; 128 miles would be closed (8%), and 32 miles would be limited (2%). The **Proposed Plan** takes into consideration the large-scale land ownership and vehicular access changes that have taken place since the mid 1980's, as well as local resource sensitivities and conflicts with other uses.

Under the **No Action Alternative**, 1,509 miles of routes are available for use. Under both the **Proposed Plan** and the **Enhanced Recreation Opportunities and Access Alternative**, the route network mileage designated open would increase. This is the result of newly identified routes since the last route designation effort. Many of these routes currently may be available for use, but some action to close, rehabilitate or evaluate and take further action on them will take place in the reasonably foreseeable future if the **No Action Alternative** is selected, depending upon each route's specific history.⁷ The **Enhanced Resource Protection Alternative** would decrease the open routes in the network by 24 miles or about 2%. This decrease would not substantially impact vehicular access overall.

Some route closures, and therefore localized access restriction would occur under the **Proposed Plan** and the **Enhanced Resource Protection Alternative** to specific areas that are no longer readily accessible by motor vehicle. Overall, vehicle access for most recreational activities and other exploratory activities would not be substantially affected in the network. Under the **Enhanced Resource Protection Alternative**, the elimination of a popular north/south "dualsport" route would result in further costs to this permitted activity, which is currently limited under the existing biological opinion with US Fish & Wildlife Service to designated open routes.⁸ This loss would be somewhat offset by potential use of newly designated open routes as "dualsport" routes. However, few long-distance routes exist in the NEMO Routes planning area that avoid wilderness and other sensitive areas to provide "dualsport" route alternatives. Overall decrease in competitive and "dualsport" opportunities and increased costs has occurred regionally, in conjunction with previously mentioned wilderness legislation, expansion of parks, urban growth, bioregional plan strategies to protect sensitive species, and interim closures. Therefore, the **Enhanced Resource Protection Alternative** would result in a measurable, if relatively small, addition to these affects.

4.7.3 Recreational Activities

As with vehicular access, the list of cumulative effects on recreational resources and activities is wide ranging and substantial because by their very nature these activities are closely tied to vehicular access, and the NEMO Plan/FEIS (2002, p. 4-142) concluded that:

⁶ Private land owners, patented lands and facilities, and routes to facilities associated with permitted activities.

⁷ A few routes are limited to specific rights-of-way holders, particularly those built for accessing facilities. The closure plans for the facilities may also include rehabilitation plans for routes under No Action. Since the No Action Alternative does not make a determination on whether newly identified routes were existing in 1985/1987 (i.e., errors), are associated with permits, are unauthorized, are reroutes in response to wilderness boundaries, or have another purpose, and does not designate these routes it is an incomplete alternative.

⁸ After additional analysis and consultation with USFWS and other appropriate agencies, permitted activities may be considered for routes that are not designated open. Timeframes would be substantially longer and costs would be higher.

“Recreation opportunities within designated wilderness and units of the NPS system were moderately to substantially modified, in particular those on wilderness lands....Taken together, the cumulative impacts to competitive event-related recreation, since the late 1980’s, is significant, based on these, as well as NEPA analysis of existing uses. The effects to non-competitive events are moderate, based on the change in status of these lands from WSA to wilderness. The current wilderness legislation under consideration (SB 2535) would remove motor-vehicle use, including potential dualsport events, along a popular section of the Tonopah & Tidewater Railroad (T&T) south of the Dumont Dunes OHV Area. The section in question runs from Salt Creek ACEC, south to approximately the Riggs siding.”...All opportunities would be further limited if (sic) the Ft. Irwin expansion occurs....

Vehicular access and recreational opportunities are inextricably linked, since users generally ride their vehicles to access desert resources, even many non-motorized (e.g., hiking and horseback riding areas) resources, based on the climate and time constraints. Based on the previous analysis for vehicle access, route designation within the NEMO Routes area could potentially have a substantial incremental effect on cumulative recreational opportunities and the CDCA recreational opportunity spectrum depending on the answers to the following two questions.

- How much are recreational opportunities constrained overall?
- Are there specific types of recreational opportunities that are substantially further limited or substantially more available than previously as a result of this designation effort?

The Bureau does not have long-term records on the level of recreation-related casual use activities in Southern California over extended time periods except at El Mirage Cooperative Management Area. Casual use at this OHV Open area near the Victor Valley metropolitan area, after briefly leveling off in the mid 1980’s, is increasing at a modest pace along with the population increase in the Valley. Based on this data and recent data from Dumont Dunes OHV Area in NEMO that reflects similar trends, modest growth in the use of the primary route network and associated high-use recreation destinations is anticipated in the planning area in the reasonably foreseeable future. The OHV event permits authorized within NEMO routes of travel network has been increasing at a moderate pace in recent years, as has the activity in the West Mojave, which is assumed to be typical of Southern California. It is anticipated that permit activity will continue to moderately increase in the reasonably foreseeable future, consistent with the continued population growth in the region and the aging of the population.

Under this scenario, all alternatives provide a serviceable and useable system of routes of travel for casual vehicular use to accommodate recreation activities within public lands. The **Proposed Plan**, and the **No Action** and **Enhanced Recreation Opportunities and Access Alternatives** would allow for recreation opportunities and activities on BLM administered lands. This conclusion is based on a look at each of the alternatives and the analysis of impacts for each alternative. Present and future recreational needs are met with these alternatives.

The **Enhanced Resource Protection Alternative** would limit access to specific areas or for specific activities (e.g., along some washes, along sections of the T&T in WSA, surrounding ACEC, adjacent to wilderness areas, for “dualsport” events) that, if access were available, would enhance the local network in specific areas as well as making specific recreational destinations or activities more available to the casual as well as permitted users. With the exception of the T&T, the routes identified are secondary routes in the system, and some require four-wheel drive. The T&T is limited by natural barriers but is a

more popular route that provides access to historic sites, other network routes, the Dumont Dunes OHV Area from the south as well as providing a north/south OHV access in areas between wilderness and SR247, and provides a frequently used route of permitted “dualsport” events. Vehicular access adjacent to wilderness areas provides scenic touring and non-motorized recreational opportunities to a subset of almost 1 million acres of the NEMO Routes planning area (i.e., that portion of wilderness areas which a hiker or equestrian is able to access, given time and resource constraints) that would be more or less limited in local areas under this alternative.

4.7.4 Socioeconomic Resources

While the current resident population within the NEMO Routes planning area is at less than 200,000, approximately 76,000 jobs are associated with those residences⁹, and historic economic growth hovers at approximately 1 to 3 percent depending on the area (US Census, 1990 and 2000), none of the alternatives would significantly impact the NEMO economic area. The relevant question is whether any of the alternatives would substantially better position the NEMO economic area to partake in some of the phenomenal growth that is currently occurring and is projected to continue in adjacent counties to the east. If the growth persists as anticipated, better vehicular access to and from the planning area to key points in Nevada would improve the area’s opportunities for growth and would further allow the area to partake of additional visitor dollars.

For remote private lands, county governments had been projecting limited growth due to lack of water and infrastructure. However, several valleys include deep aquifer reservoirs that may be tapped, and the growth in Nevada may provide additional future mechanisms for infrastructure development. With that in mind, the **Enhanced Resource Protection Alternative** has the potential for minor adverse impacts in some areas. The other networks provide additional flexibility for growth and commercial enterprises with respect to access of private lands, along County Roads, and in additional California-Nevada connectors for commercial transport and recreational tourists that enhance future potential socioeconomic opportunities in the planning area.

Growth would include additional costs, such as those associated with maintaining roads to accommodate additional vehicular traffic, addressing additional infrastructure needs, and other indirect costs associated with development and human use. Given the relative economic conditions in the planning area, the benefits from increased growth would outweigh increased costs and could provide additional diversity in the economic opportunities available to residents of the NEMO economic area.

4.7.5 Summary

What follows is a brief summary of cumulative impacts for Routes of Travel, CDCA-wide and conclusions relative to the effects of the NEMO Routes of Travel designations on the cumulative impacts. As other plans continue to be developed and the picture becomes further clarified, discussions of cumulative impacts can be updated.

The **Proposed Plan** provides a route network for the casual user and includes route closures for sensitive resource values, in consideration of the moderate level of growth anticipated over the 20-year life of the plan, consistent with 43CFR8342.1. The additional protection or buffering of sensitive areas under the

⁹ Dean Runyan Associates – Northern and Eastern Mojave Planning Area: Economic Impact Analysis, 24 June 1998, prepared for the National Park Service.

Enhanced Resource Protection Alternative provides one strategy to hedge against an unexpectedly substantial increase in use of the route network if accompanied by an associated increase in impacts, and the incremental decrease in route mileage proposed by these closures is relatively small. However, data does not support the level of route impacts anticipated under this alternative, and unanticipated impacts can be addressed by modifications in the route network, with additional public input. The effects from the increased closures would be added to the previous adverse effects experienced in recent years in many areas of the CDCA.

The **Enhanced Recreational Opportunities and Access Alternative** provides a network for the casual user that includes the minimum of route closures for sensitive resource values, consistent with 43CFR8342.1. It also focuses its review of sensitive resource values on previously designated special areas (e.g., critical habitat, ACEC, wilderness, eligible or listed property locations). Finally, adjacent area growth was not a significant factor considered in route designation decisions, based on the low levels of growth within the NEMO Routes planning area. Although no studies were conducted for this planning effort to determine how many public land users are from the planning area and how many are from adjacent areas, based on past on-the-ground interviews it is likely, based on recent growth of use, that faster growing areas of Southern California and southwestern Nevada are contributing a measurable percentage of users, and will continue to do so.

Off Highway Vehicle (OHV) use will continue to be focused in OHV open areas. Access on routes of travel, including navigable washes, will be designated as open, closed, or limited use as required in the CDCA Plan and CFR regulation. The nature and array of designations vary from plan to plan according to routes inventories, access needs of stakeholders, planning criteria, and distributions of sensitive species. Since uses and needs change over time, it does not necessarily follow that all routes are equally needed today and in the future. Executive orders and regulations require BLM to make judicious review of access for needs, evaluate conflicts and make decisions. As a result of route designation, the number of currently available routes will probably be reduced by modest levels. Route designations do not directly affect current or future access granted under specific use authorities, and indirect effects (e.g., monetary) are generally modest.

In some areas valued for hobby rock and mineral collecting, camping, and hunting and areas near urban centers, washes would be available for motorized-vehicle use. Wash routes may be limited or closed to enhance sensitive resources consistent with 43CFR8342.1 in DWMA and other areas identified as critical to species recovery; areas eligible or listed on the National Register of Historic Places; and in areas previously designated under ACEC plans. Strategies have been developed to survey cultural resources along the designated route network and survey results may indicate the need for additional limitations or relocations of routes in specific locations. Routes designations made in the CDCA plan and amendments thereto will not affect the resolution of RS2477 claims. Stopping and parking will continue to be 300' throughout public lands except 100' inside desert tortoise DWMA and other sensitive areas, as identified. Unauthorized new proliferation of routes on federal lands will be addressed. Opportunities for competitive vehicle events outside open areas will be reduced due to natural resource concerns and cultural values.

BLM's 1980 CDCA Plan resolved issues of use and protection and continues to guide management in the NEMO Routes planning area. Today, however, large areas of the CDCA have been designated as wilderness and additionally critical habitat has been identified for about 30 species, including the desert tortoise. In addition, huge areas of the desert have been identified as Areas of Critical Environmental Concern, some in conjunction with the critical habitats and some extending far beyond these boundaries

and unrelated to biological resources. Finally access to approximately 1 million acres has been temporarily limited due to interim closures for an average of approximately 3 years—these closures are all expired or due to expire this year. While special designations and current plans have contributed to the conservation of resource values, fundamental recovery and conservation of a total of 150 species and prevention of the slow loss of the cultural heritage on public lands remains to be resolved in further land use planning, CDCA-wide.

Some public scoping comments on the NEMO Routes proposed plan amendment/EA indicated that closure of any route would contribute to significant adverse cumulative effects, particularly to access and use of desert resources. There have been significant adverse effects to these resources already, desert-wide. However, in light of past actions and the potential for cumulative change from all current plans, BLM analysis shows that NEMO Route decisions would be cumulatively small and spread across several programs. A concerted effort was made under the **Proposed Plan** to be consistent with 43CFR8342.1 and to still provide as much access as feasible within those constraints, given the pockets of sensitive resource values and conflicts with other uses that are found in the planning area (e.g., critical habitats and ACEC, listed properties, active mines, and routes through riparian areas).

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